Check out your favourite CPC scene guide for games, prizes, serious applications and a whole lot more...

AMSTRAD COMPUTER USER

ACU

JULY 1991

ONLY £1.65

THE BEST VALUE



THE FAMOUS FIVE 1

Enid Blyton's intrepid team comes to life in an epic Enigma adventure

PORT-ABILITY

Make the most of your printer port with a little expert guidance

TROUBLESHOOTING

Solve your proggie blues with a little bit of Kwikref

GAMEPLAN

The latest CPC blasts have landed! Check out Prince of Persia, TV Showtime, The Winning Team, Toyota Celica, Skull and Crossbones and much, much more inside

SOLDERING ON

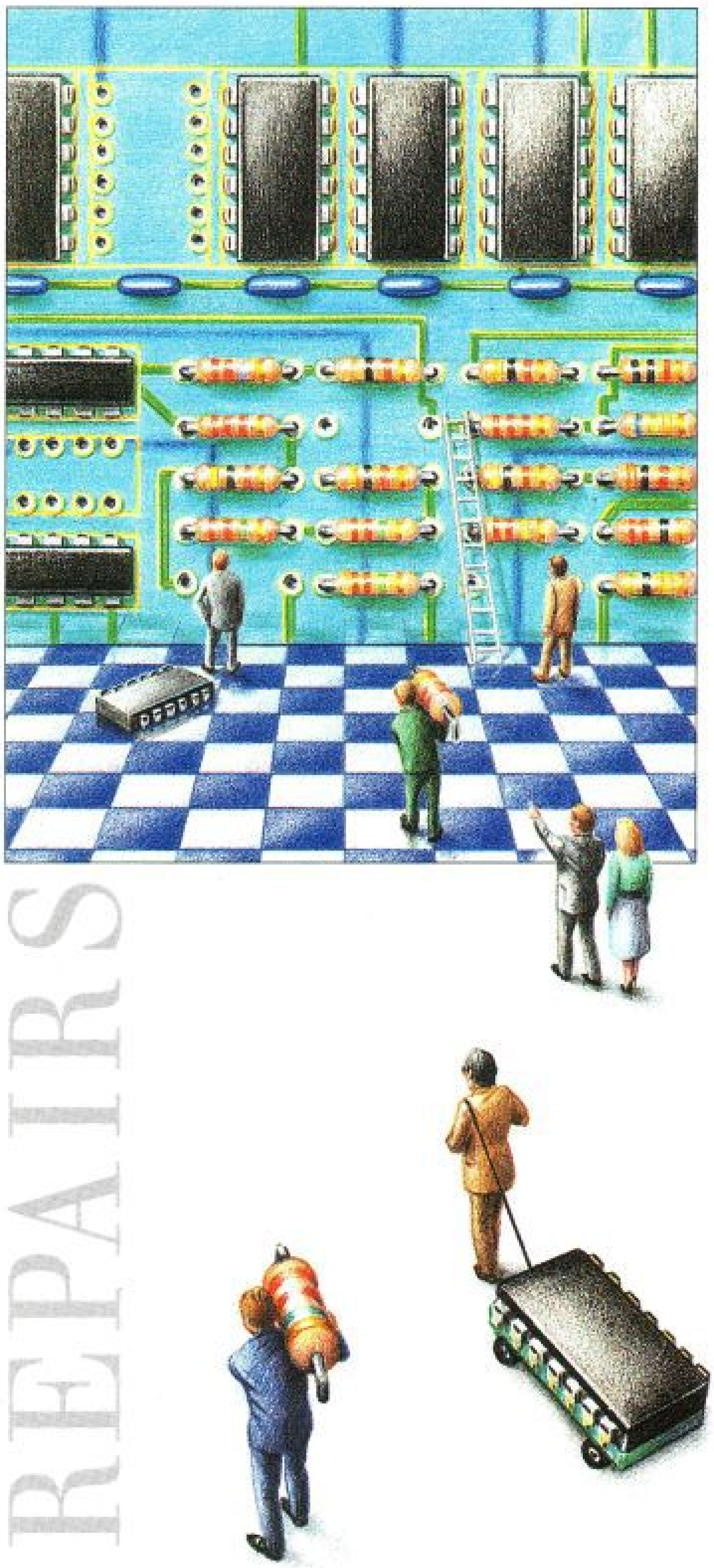
Add new dimensions to your CPC with the first of a brand new ACU hardware project series

OFFICIAL — THE MAGAZINE FOR THE AMSTRAD 464, 6128 & GX4000 CONSOLE

07

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Amstrad Repairs



If something is wrong with your Amstrad CPC or PCW, who better to turn to than the National Repair Centre.

For all repairs to your computer, one low payment covers diagnosis, repair (including parts and labour) and delivery back to you.

And, as a special bonus, you can receive a free piece of software if you contact us before 28th June 1991.

The experience and expertise of our technicians ensures that your computer is repaired to the highest standard at the lowest cost. And each repair will be carried out within 12 working days!

To schedule a repair and claim your free software, simply call Michelle or Audrey on 0733 391234.

Please be ready to give your name, address, computer type, serial number and the type of fault.

The costs are:	*CPC 464* -	£57.45
	CPC 6128 -	£57.45
	PCW 8256 -	£85.00
	PCW 8512 -	£86.00
	PCW 9512 -	£115.00

FREE SOFTWARE

All prices are inclusive of VAT, and payment can be made by cheque, postal order or credit card.

And remember, if you call before 28th June, you can claim a FREE piece of software.

AMSTRAD REPAIRS

The National Repair Centre
0733 391234

FMG House
Newcombe Way, Orton Southgate
Peterborough PE2 0SF

ONE PRICE COVERS ALL PARTS AND LABOUR

BrunWord

Complete Word Processing Package £30

BrunWord 6128 is a complete word processing Package consisting of a word processor, spelling checker and card filing programme. It out performs all other word processors for the CPC6128.

BrunWord uses its own high speed screen routine, giving it a very fast response. The editor features are logically arranged, to be easy to learn and the spelling checker with its dictionary load into memory at the same time as the word processor. The whole system is very convenient and exceptionally fast. It is supplied with an introductory tutor file.

BrunWord Features

*40, 80 or 128 columns. *Typing speed 200 words/min. *True insert or overwrite. *Justify or unjustify paragraph or whole text. *Balanced justification. *Instant word wrap. *Block save, move, copy, insert and delete. *Local editing with word delete/undelete. *Adjustable margins and TABs. *Word count. *Column/Line/Page display with file name. *Find and replace. *Help menus. *Memory files. *Single character embedded printer commands (18 with 3 codes and 21 with 10 codes). *Page throw markers. *Multiple copies. *Odd/even page headers/footers with page numbers. *Multi file printing. *Print specified pages. *Use any printer. *True display super/subscript numbers. *User defined characters. *Load/Save ASCII files from/to other word processors. *Files can be encrypted. *Maximum file size about 9 pages.

BrunSpell Features

*Memory resident programme and dictionary. *Checks 4,000 words/min. *30,000 word dictionary. *No American spellings. *Add up to 5,000 of your own words. *Instant lookup. *Helps to find correct spelling. *Automatic correction.

DataFile Features

*Alphabetical, numerical, date sorting. *User defined headings. *Search routine. *Data merging. *Label printing.

Quotes

"It may seem that I have just written a very long advert for BrunWord 6128 but I haven't, I'm just so impressed."
(Phil Craven, ACU Feb 90, page 25).

"One such is Peter Brunning's BrunWord 6128 which is without doubt in my mind, the most powerful and friendly word processor available for the 6128 today, with the possible exception of.... BrunWord Elite!"
(David Dorn, ACU July 90, page 43).

How They Compare

	BrunWord 6128 & BrunSpell	Protext Disc & Prospell	Tasword 6128 & Taspell
Typing into 241 word paragraph Typing into start of text	218 w/m 218 w/m	218 w/m 218 w/m	16 w/m 150 w/m
Scroll to end, line by line	1 min 27 sec	2 min 2 sec	2 min 25 sec
Justify paragraph of 241 words	1 sec	0·2 sec	34 sec
Change appearance to format and Appearance to Format	17 sec	17 sec	53 sec
Spelling check 3366 words Average speed Disc changes	52 sec 3883 w/m None	6 min 24 sec 526 w/m 8	18 min 46 sec 179 w/m 3
Spelling help 'NECESERY' Spelling check word at cursor	1 sec 0·5 sec	12 sec Not possible	Not possible Not possible
Screen format - columns Page boundaries	40, 80, 128 Shown	40 or 80 Not shown	80 only Shown

BrunWord Elite

Elite Word Processor For CPC6128 £55

BrunWord Elite has a unique advantage over its rivals, it can only be used with dot matrix printers. All other word processors are compromised to drive daisy wheel and dot matrix printers.

In the early days of computing a printer was simply a form of electric typewriter. (High quality printing, noisy and very slow). Then came the dot matrix printers, specially designed for computers. (Medium quality printing, not so noisy and much faster). Over the years, the typewriter style has become the daisy wheel printer and although greatly improved, it has been left far behind with the quality, speed and versatility of modern dot matrix printers.

Most word processors, including BrunWord 6128, can use dot matrix and daisy wheel printers. This creates the need for a style of printer control that is acceptable to two very different types of printers.

BrunWord Elite does not have this restriction as it is specifically written to be used only with dot matrix printers. This gives it a unique advantage over other word processors and as a result it is able to provide much more advanced printer control.

This is taken even further, as BrunWord Elite is supplied with an 8 Bit Printer Status Port which allows the programme to continuously monitor the status of the printer, (as well as providing the missing 8th bit for the original CPC6128). This means that BrunWord Elite is able to respond in a more sophisticated way than normally possible. It will wait for ON LINE or <ESC> if the printer is initially OFF or OUT OF PAPER but automatically returns to the editor if the printer is turned OFF.

24 Pin Fonts

Before we designed the fonts for BrunWord Elite, we studied several good magazines and concluded that the bulk of the text was printed in fonts that derive from two basic themes. Our fonts Fineline and Finetype are variations of these two styles, optimised for dot matrix printers. Fineline is supplied in three sizes and Finetype in two sizes. To these we added a display font in computer style type and a straightforward 'Heavy' font. Altogether there are 7 fonts supplied, four are full 24 pin fonts, two are middle size 21 pin fonts and one is a small size 16 pin font.

BrunWord Elite Features

All the features and speed of BrunWord 6128 and BrunSpell, plus:-

*Print in columns *Specify page layout *Use special high quality proportional fonts *Use advanced micro justification with proportional text *Set printer margins independently *Move print head up or down paper, specified in inches from top *Set micro line spacing within text *Print line or box by specifying size and line thickness *Use absolute TABs with proportional text *Download a file directly from disc during printing. *Can be supplied with Info-Script for data merging.

Headline

Headline is a print enhancement utility specially designed for use with low cost 9 pin printers. It enables virtually all the features of BrunWord Elite, including the 24 pin fonts, to be used with any 9 pin Epson compatible printer. The only requirement is that the printer must have quadruple graphics (all well known modern 9 pin printers). Even printers which do not have double height printing will be able to use all the features of Headline, including micro justification, normal, double and eight times height, and 1 to 9 times width.

9 Pin Elite £55

BrunWord Elite, BrunSpell, Headline, an 8 bit printer status port and 7 'type setting' fonts (fonts are 24 pin in size but only for 9 pin printers). Total price £55.00 inclusive.

9 Pin Elite+Info £92

As above but including Info-Script and a backup disc. Total Price £92.00 inclusive.

24 Pin Elite £90

BrunWord Elite, BrunSpell, Info-Script, back up disc, an 8 bit printer status port and 7 'type setting' fonts for downloading to a 24 pin printer. Total price £90.00 inclusive.

Info-Script

Complete Data Processing Package £50

Info-Script includes BrunWord 6128 and BrunSpell. The word processor and database can be resident together, giving the convenience of access to both programmes with no disc delays.

Info-Script is written around the full BrunWord 6128 word processor, enabling many routines to be common. This makes a very compact combination and allows both programmes, 6 pages of text and 1000 addresses to be in the memory at the same time using a standard CPC6128 (or 6128 plus). The great advantage of this is the speed and convenience of no disc delays.

Database Features

*Very fast (e.g. takes 1 second to search 2000 addresses for surname 'Smith', initial 'B'). *Specific field search and/or progressive general search. *Instant sort on any field, alphabetical, numerical, date or reverse order (zero time as the data does not move). *3 sets of user defined headings for each file. *4 markers for instant selection, plus one temporary marker. *Markers can be cleared or inverted and any pair can be added (allows complex searches to be quickly and easily performed). *No setting up of field type or length. *Efficient storage. *Relational records, Parents, Sons and Daughters. *Field to field arithmetic. *Direct data merging into BrunWord. *Easy direct label printing, 1 or 2 across, left of 2 or right of 2. *Single or multi-step.

Data Merging Features

*Simple intelligent system, &N &A &D construct full name, full address and date. *&1 &2 etc specify individual fields. *Insert or fixed format merging. *Automatic justify after merging. *Single step (see before printing) or multi-step. *Stop any time, go to word processor, restart same place. *Merge data from several records for summary, invoice, purchase order etc. *Arithmetic. *Running total. *VAT total. *Conditional loading. *Conditional printing. *Repeat patterns.

100 Letters £15

100 Letters is a utility for use with Info-Script, enabling pre-written letters to be easily selected and personalised. It is supplied with a library of 50 letters but even the most cautious users will be able to write simple letter patterns to expand the library to '100 Letters'. If multi-purpose patterns are used then the upper limit depends only on the skill of the writer. A third type of letter pattern, aimed at solicitors, doctors, school teachers, estate agents etc, consists of up to ten pre-written paragraphs. The user indicates which of the paragraphs are to be used. 40 separate letters can be added using this style.

Send cheque/PO/Access number/Visa number to:



Brunning Software
138 The Street,
Little Clacton, Essex, CO16 9LS
Telephone (0255) 862308

BrunWord 6128 with BrunSpell & DataFile. . . £30.00
Info-Script with BrunWord 6128 & BrunSpell. . £50.00
9 Pin BrunWord Elite £55.00
9 Pin BrunWord Elite with Info-Script. £92.00
24 Pin BrunWord Elite with Info-Script. £90.00
100 Letters (needs Info-Script). £15.00

Supplied on 3in Disc for CPC6128 or CPC6128 Plus.
You must state which computer.

All prices are inclusive for UK. Overseas orders sent insured air mail - Europe add £2.50 : Rest add £7.50

BrunWord

Font Editor £20

Our very first font was designed using the Qualitas font editor, for use with BrunWord 6128 and Qualitas. The result, although good by low cost printer standards, was well below type setting quality.

So we designed BrunWord Elite, to bring polish to the quality of ordinary printing. Originally released for 24 pin printers and now also available for 9 pin printers, its quality is summed up by a question from a potential buyer. "Surely the sample you sent was printed on a laser printer?" An experienced eye can see that a 9 pin printer was the source but the buyer was expressing his overall impression of the appearance.

Such comments are not surprising when you consider that BrunWord Elite characters can be made up of 3 times as many dots as normal Near Letter Quality.

Designing a font can be a frustrating task. The heart of our 32 pin font editor has been around for longer than BrunWord Elite, but we wanted a more direct way to generate and manipulate fonts. We had a vision which was an impossible dream but we 'value engineering' the idea to realism. Our BrunWord Elite Font Editor has all the normal font design facilities with two new and exciting dimensions. It is possible to change the outline size of a character by pressing one key and it is possible to transfer hand drawn characters into the editor.

The size change routines can be used by anyone and it is possible to convert the existing BrunWord Elite fonts to the full 32 pin size or to create an in between size. One key press and the character size is changed but some final editing is usually needed.

The scanning of hand drawn characters into the editor requires the use of a Dart Scanner and an Amstrad 9 pin printer (which are not included). Just imagine how you would go about designing a completely original font. It's almost impossible to know where to begin and the limitations of putting dots directly onto a screen kills most people's creative urge. The character scanning system allows the creative element to be performed off screen with pen and ink. Once you have the character set designed, the task of transferring this into the editor is a routine process, requiring only minimal creative energy.

The BrunWord Elite Font Editor can save fonts for use with 9 pin or 24 pin printers but must start with the font in the Headline format.

32 Pin Fonts

We have created two new fonts 'Chelmer' and 'Clacton' which cost £10 each. These are full size 32 pin fonts for use with Headline but a 24 pin version (for 9 or 24 pin printers) can be generated using the BrunWord Elite Font Editor.

Which One?

We are often asked which of our word processors is best for a non technical person. The answer is simple. As BrunWord 6128 is the corner-stone of all our programmes, your first steps will be delightfully easy, whichever programme you choose.

If you must have a mail merge system then BrunWord 6128 could be your best buy but the ease of use and convenience of Info-Script makes it the serious choice. If you consider mail merging to be unnecessary then '9 Pin Elite' is without doubt the best value of all our packages.

The full '9 Pin Elite + Info-Script' is for the serious perfectionist who also needs a database.

Free Booklet

Our 16 page free booklet explains all about our programmes. Send a large SAE (9*12inches & 2*17p stamps) to 'BrunWord & Printer', Brunning Software, at the address below. (No need to write a letter).

Quote

"I bought it (BrunWord Elite) because I hoped its unique page layout routines and high quality fonts would enable me to produce professional looking newsletters and eye catching promotional material. I wasn't disappointed. BrunWord did all these things and more." (Vic Barnes, ACU Dec 90 page 24).

BrunWord 6128 £30

Complete word processing package with word processor, spelling checker and card filing programme. BrunWord 6128 out performs all other word processors for the CPC6128. It's high speed screen routine, gives it a very fast response and the editor features are logically arranged to be easy to learn. The spelling checker, with its dictionary, load into memory at the same time as the word processor, making access very convenient and exceptionally fast. It is supplied with a 40 page manual and an introductory tutor file.

Info-Script £50

Complete data processing package, including all the features of BrunWord 6128 and BrunSpell. The word processor and database can be resident together giving the speed and convenience of common access with no disc delays.

9 Pin Elite £55

The Elite system for 9 pin printers consists of BrunWord Elite, BrunSpell, Headline, 8 bit printer status port and 7 'type setting' fonts (fonts are 24 pin in size but for 9 pin printers). Total £55 inc.

9 Pin Elite+Info £92

The Elite system as above but including Info-Script and a backup disc. Total price £92 inclusive.

24 Pin Elite+Info £90

BrunWord Elite, BrunSpell, Info-Script, back up disc, 8 bit status port and 7 'type setting' fonts for downloading to a 24 pin printer. Total £90 inc.

BrunWord Elite Fonts

Printed using low cost 9 Pin Printer & shown 70% actual size

Fineline Our Fineline fonts are the sharpest characters that the printer can produce and three sizes are supplied with BrunWord Elite. This 24 pin size is the largest.

Finetype Our Finetype fonts are two pins thick on the vertical, shaped down to one pin thick on the horizontal. Two sizes are supplied.

Comput Comput is a display font designed primarily for main headings. It can be rather overpowering in large paragraphs.

Heavy Last of our standard fonts is 'Heavy'. This has a similar outline to Fineline but with a thicker line. It can be used for ordinary correspondence.

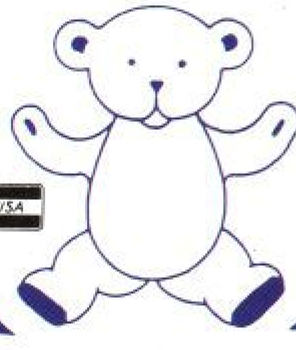
Chelmer Our most sophisticated font. Mathematical uniformity, contoured thickness, Chelmer is a true aristocrat among fonts.

Clacton *In total contrast 'Clacton' is a relaxing flowing, seaside font, inspired by the local resort and based on characters hand drawn by Peter Brunning.*

Chelmer and Clacton are optional extras and can only be printed using Headline.

Send cheque/PO/Access number/Visa number to:

Brunning Software
138 The Street,
Little Clacton, Essex, CO16 9LS
Telephone (0255) 862308



BrunWord 6128 with BrunSpell & DataFile. . . £30.00
Info-Script with BrunWord 6128 & BrunSpell. . £50.00
9 Pin BrunWord Elite £55.00
9 Pin BrunWord Elite with Info-Script. £92.00
24 Pin BrunWord Elite with Info-Script. £90.00
Elite Font Editor with 'Chelmer' & 'Clacton'. . £25.00

Supplied on 3in Disc for CPC6128 or CPC6128 Plus.
** You must state which computer. **

All prices are inclusive for UK. Overseas orders sent insured air mail - Europe add £2.50 : Rest add £7.50

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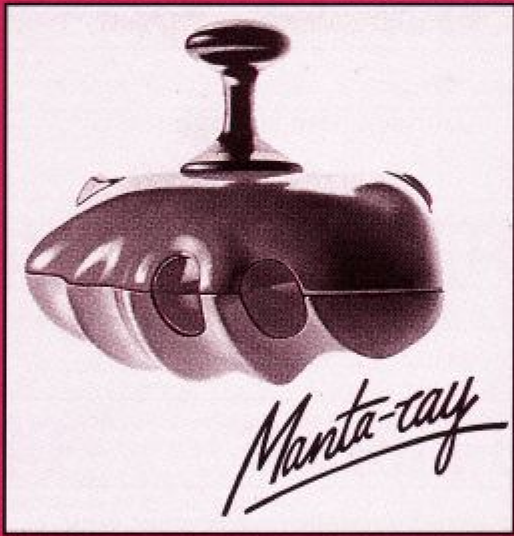
Published on 1st Thursday of month preceeding cover date

ISSN 09523049

REGULARS

FEATURES

IN AT THE DEEP END



Following on from the huge success of the Sting-Ray, Joystick manufacturers Logic 3's latest product takes it's fascination with the oceans one step further.

Designed with comfort and control in mind, the Manta-Ray looks more like an alien escape pod than a joystick, but performs excellently under rigorous testing.

With three fire buttons, located to give instant access to whichever finger you like to zap with, the Manta-Ray handles superbly and offers control when it comes to the crunch.

Highly responsive and, with a lot of time taken on the ergonomic design, the Manta-Ray fits snugly into your hand for prolonged play without discomfort.

Retailing at only £12.99 for the standard model and £14.99 for the autofire, there's certainly no sting in the tail as far as cost is concerned. Try one out next time your in your local shop, it may be just what you've been looking for.

TOPOLOGICAL NEWS

More exciting news for adventurers is the promise by Topologika to release a brand new title in the Autumn, the long-awaited Spysnatcher by Jon Thackray and Jonathan Partington.

Inspired by Peter Wright's Spy Catcher novel, the game should retail at around £14.95 on disc only and promises to be a thumping text-based success. For more information about the release date, try ringing Topologika on 0733 244682.

NET PROFIT

As from April, subscribers to Micronet have been given unlimited free off-peak access to all Micronet and general. Prestel information for the cost of a local telephone call.

Using new tariffs, users will now pay £30 for a quarterly subscription and 8p per minute during peak times. Access at all other times will be free of any time-based charges.

What does this mean? It means you can log onto the Amster's Cage during off-peak periods and not have to lose your trousers to the debt collectors. Now that's got to be good news.

Anybody who want to know more about Micronet's services, should ring 0442 237237.

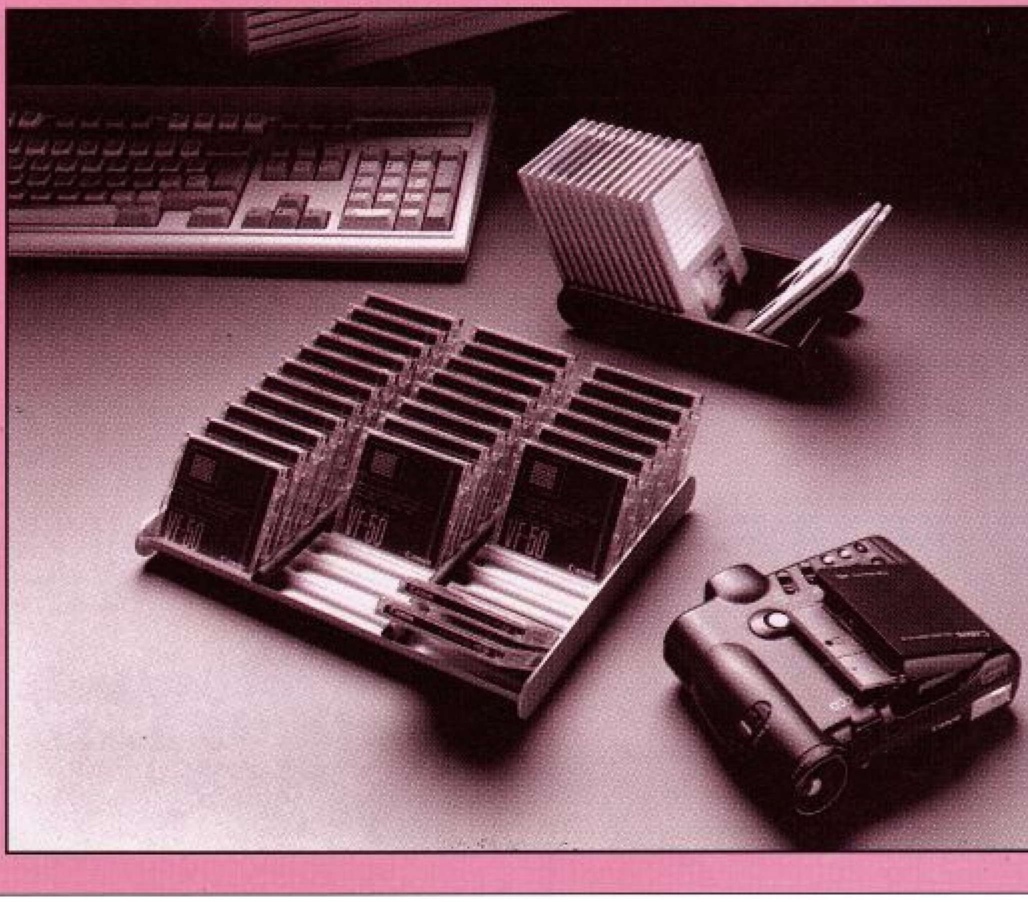
TESTING TIMES

With regard to the feature on Christopher Price of CpRs Design Technology in the March 1991 edition of ACU.

We would like to emphasise that Direct Telecom Services Ltd, and the other Companies mentioned in that article, should not be approached for third party support relating to the software produced by Christopher Price.

Also, the 'Testset' program is designed to be used in conjunction with a Radio-Frequency Generator, not as a stand-alone replacement for calibration test equipment used in the PMR industry.

All enquiries should be made to: Christopher Price, CpRs Design Technology, 70 Potton Road, Eynesbury-Hardwicke, St Neots, Cambs PE19 2NN. Tel: 0480 76038 (6-9pm).



EXTRA LIFT

Those clever people at LIFT have come up with another space saving idea for all of you with 3.5 inch drives.

The new DATABOY range offers storage of either 23 or 43 discs, with respective prices of only £3.99 and £5.99 respectively, allowing you to keep a tidy workshop for a tidy price.

Allowing easy access to any disc, the DATABOY range is soon to be increased, so what we at ACU want is for LIFT to be bombarded with calls for some 3 inch storage space for our games, proggies and utilities.

Just think of the space savings, especially at those prices. So, come on LIFT, let's see those storage systems on the shelves soon.

For more details, try ringing LIFT on 0296 615151.

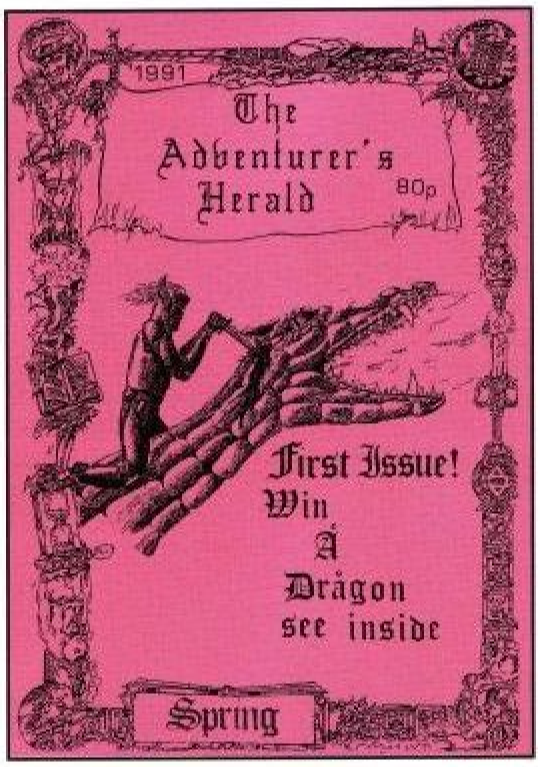
A NEW HERALD

Calling all adventure freaks, whether computerised or not. A brand new fanzine, entitled The Adventurer's Herald has just hit the streets, offering news, reviews, competitions and readers advertisements on just about every aspect of adventuring.

At the moment, Rik Jones is creating the fanzine on a 6128 and is on the look out for budding game reviewers and adventure pundits to add to the fanzine and make it grow.

If you fancy getting hold of a copy, or feel you have something to contribute to it, write to Rik at PO Box 522, Tweedale, Telford, Shropshire and let him know.

The first issue is available now at the bargain price of just 80p, so try it out for size.



STAR SAVINGS

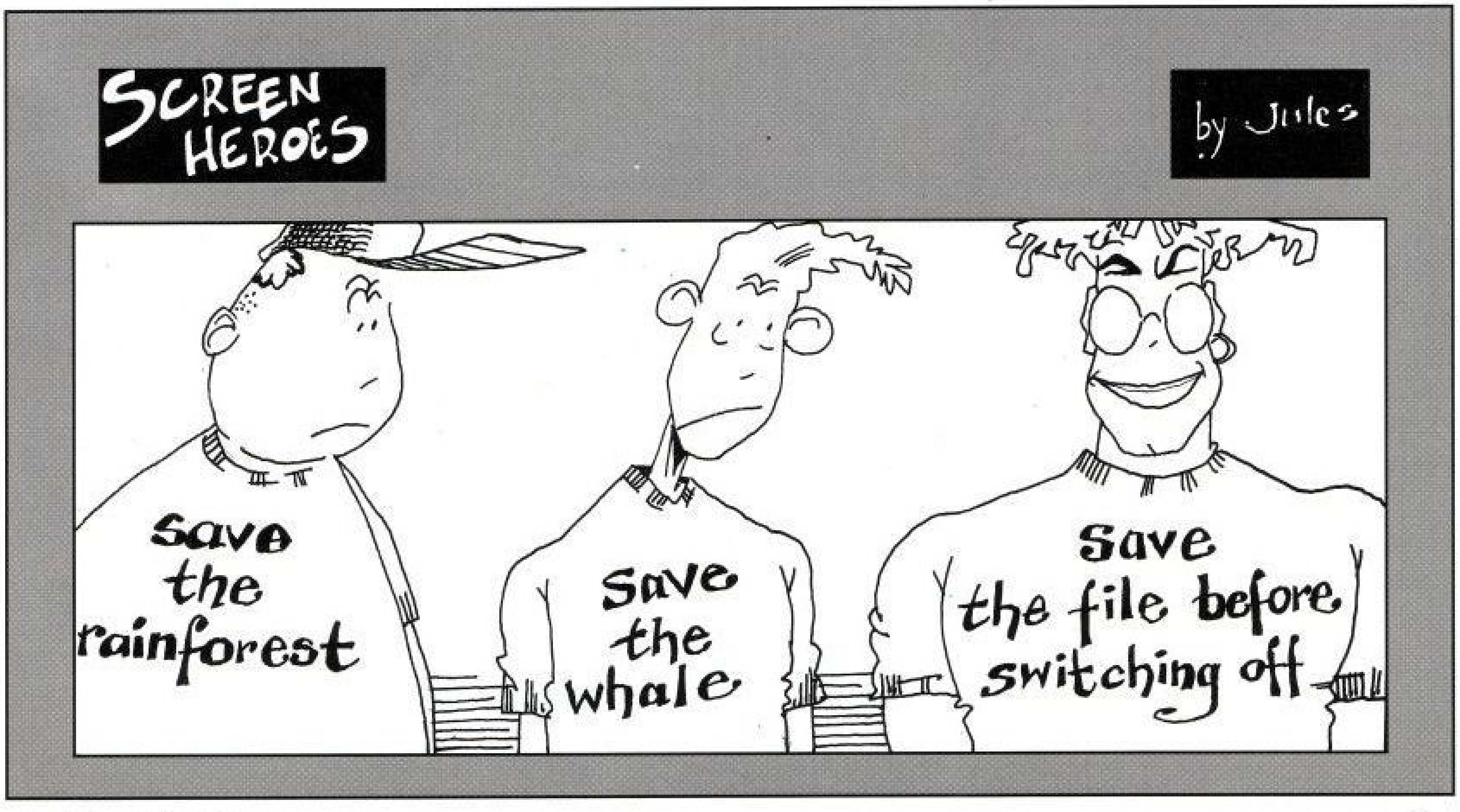
A series of staggering price drops from Star Micronics means that now you can have your cake and eat it.

All four models within the professional series of dot matrix printers, as well as the wide carriage LC-15 have been brought down in price to reduce the differences between them and the rest of Star's 9-pin and 24-pin models.

The new price changes mean you can now pick up an FR-10 9-pin for just £399 instead of £459, while the wider carriage 24-pin XB24-15 drops a massive £190 from £789 to £599.

In addition, Star is also including a drop-in colour kit worth £39 plus a colour ribbon absolutely free with these two models.

For more information about these stunning savings, contact Star on 0494 471111.



DATEL ELECTRONICS



dk'tronics

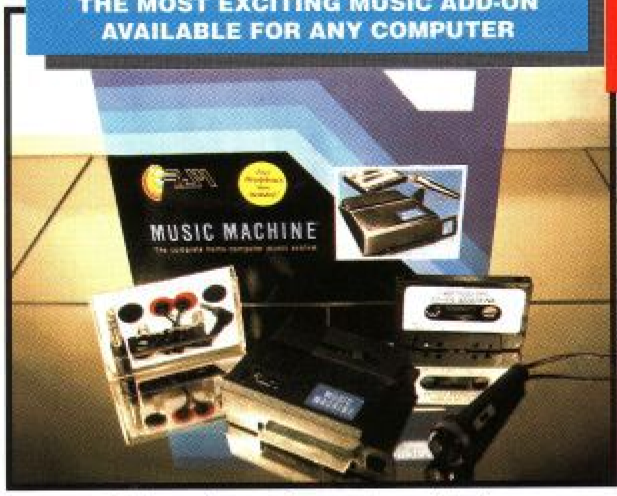
64K AND 256K MEMORY EXPANSION

- Simple plug in memory expansion gives instant extra memory.
- Features bank switching software for easy use by the programmer or for use as a data storage area.
- The software also features some extra BASIC commands.
- 64K unit expands 464 to 128K. The 256K unit takes your 6128 to 320K!!
- 64K unit brings 464 up to CPC 6128 memory configuration making a much larger software base available. Will work straight off with many programs designed for this unit (including OCP Art Studio - see Ad.).
- Ideal for use with the CPM 2.2 etc.
- Bank switching done automatically by software (cassette 464 - disk 6128).

ONLY £49.99 64K FOR 464

ONLY £99.99
256K FOR 464 OR 6128 (PLEASE STATE)

THE RAM MUSIC MACHINE IS PROBABLY THE MOST EXCITING MUSIC ADD-ON AVAILABLE FOR ANY COMPUTER



RAM music machine

- It's a full sound sampling system allowing any sound to be recorded digitally into the computer RAM. Once stored, the sound can be replayed at different pitches with many varying effects.
- It's an echo chamber & digital delay line. Create some very interesting effects.
- It's a two voice music/sound synth.
- The Music Machine can also be used as a drum machine - eight drum sounds are already provided for you, but you can easily produce more of your own.
- The extremely powerful software allows you to compose tunes from individual bars of music. You can edit your creations on screen & Savê/Load sounds, instruments & rhythms.
- Fully MIDI compatible. The Ram Music Machine supports full MIDI In, MIDI Out & MIDI Thru.
- Output through your Hi-Fi or Headphones. Comes complete with microphone.
- Use a full size MIDI keyboard to play the Music Machine.
- Sounds produced by the Music Machine can be mixed with a MIDI synthesiser's own sounds.
- On screen Sound Editor can produce MIDI data from your own compositions.
- Various sampled sounds are provided in order to get you going.
- No other product can offer so much in one unit - it's the TOTAL SOLUTION!!

ONLY £49.99
FOR THE BEST MUSIC ADD-ON AVAILABLE FOR THE AMSTRAD

AMDRUM



- **Now you qan turn your Amstrad into a real Digital Drum Machine.**
- AmDrum from Cheetah Marketing is a superb plug in device that produces "real" drum sounds via its unique digital system.
- On screen menu driven drum kit makes composing drum sounds easy for anyone to do!
- Just plug the output into your Hi-Fi, cassette player, etc. and that's it - your Amstrad is a drum kit!!
- Comes complete with DrumKit Sound plus extra DrumKit and Kit Editor Program (worth £9.99) absolutely FREE!!

ONLY £14.99

SPEECH SYNTHESISER & STEREO SOUND BOOSTER

- This easy to use Speech Synthesiser includes a powerful Stereo Amplifier and two pod speakers which are an enormous improvement on the sound supplied by the internal mono speaker.
- Speech output is monorial but directed to both speakers. Booster gives stereo to computer internal sound output.
- Using the SPO/256 Speech Chip the unit has almost infinite vocabulary.
- Text to speech software is provided in ROM to make speech output simplicity itself.
- Voicing is transparent to the user and the computer can carry on with other program tasks as necessary.



ONLY £29.99
464 OR 6128 (Please state which)

dk'tronics

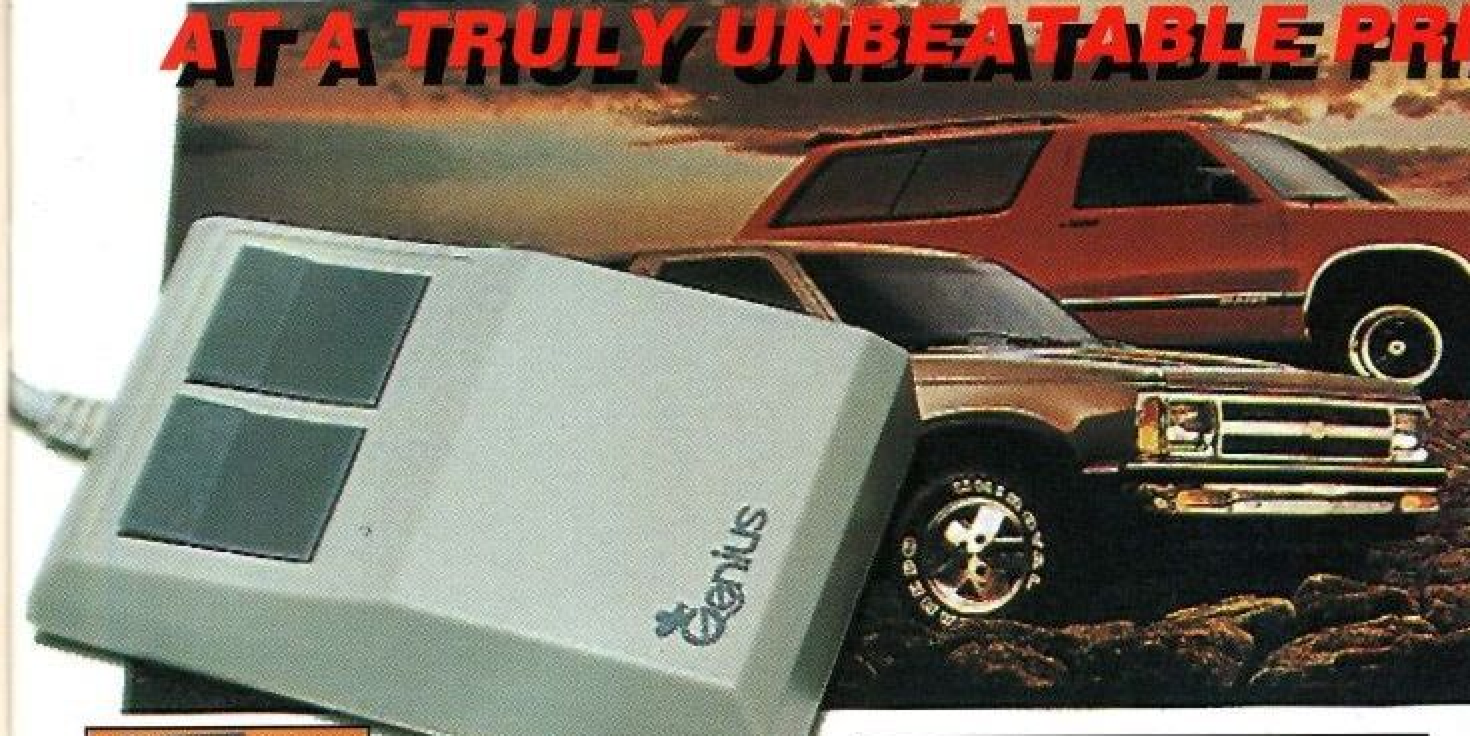
LIGHTPEN/GRAPHICS SYSTEM



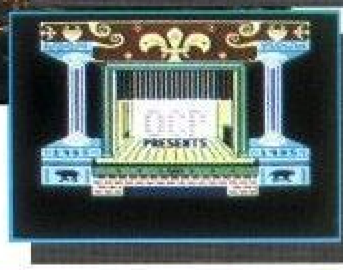
- Complete Lightpen and graphics system lets you create a whole range of effects on screen.
- It can magnify, shrink, colour fill and create circles, rectangles, lines and curves.
- Pictures can be edited at pixel level using a scratch pad which is magnified to a full screen.
- Picture storage and retrieval, and a pen calibration feature.
- Printer dump utilities for Epson/Amstrad printers supplied (on cassette).
- Complete package - no more to buy.

ONLY £14.99 CASSETTE
OR £24.99 WITH SOFTWARE ON ROM - NOTHING TO LOAD 464 OR 6128 (Please state which)

NOW A TOTAL MOUSE/GRAPHICS PACKAGE FOR YOUR AMSTRAD AT A TRULY UNBEATABLE PRICE!!







TAPE OR DISK FOR 464 OR 6128 (PLEASE STATE WHICH REQUIRED) N.B. 464 NEEDS DK'TRONICS 64K RAM PACK



Genius Mouse COMPLETE WITH OCP ADVANCED ART STUDIO

- **Genius Mouse is a high resolution two button mouse featuring optical counting, teflon guides, microswitches, rubber coated ball and high quality interface.**
- **When combined with OCP Advanced Art Studio this graphics package is quite simply the best system available. The features are unmatched...**
- Create an image - shrink it, expand it, move it, rotate it, copy it, colour it, etc., etc.
- Spray patterns or shades, make elastic lines - stretch and manipulate shapes.
- Zoom in to add detail in fine mode. ● Full cut and paste facilities plus excellent printer support.
- Pulldown/Icon driven menus for ease of use. ● Mouse operation, plus joystick and keyboard control.
- 16 pens, 8 sprays, 16 brushes - so flexible anyone can create superb graphics easily.



COMPLETE WITH MOUSE INTERFACE

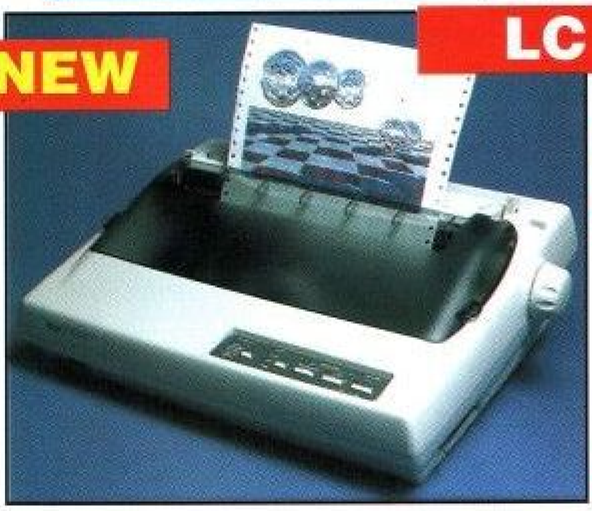


- The Genius Mouse Graphics System comes complete with the special Mouse Interface to allow super smooth control.
- Attractively styled to match your 464 or 6128 design and colour.
- Simply plugs into Expansion/Joystick port.

ONLY £49.99
TOTAL PACKAGE INCLUDES GENIUS MOUSE, INTERFACE, OCP ADVANCED ART STUDIO PLUS FREE MOUSE MAT AND HOLDER

FREE!
MOUSE MAT AND MOUSE HOLDER
(WORTH £12.99)
WITH EACH PACKAGE

NEW



LC 200 COLOUR PRINTER PACKAGE

NOW YOU CAN PRINT OUT YOUR PICTURES IN FULL COLOUR!

- The Star LC200 Colour Printer not only prints in Near Letter Quality for your regular jobs but also prints out your pictures from Art Studio, etc., in genuine colour!
- LC200 is a full Centronics printer so it works with other computers (Amiga, ST, etc.).
- Made possible by Datel's unique colour printer driver - now you can have a hardcopy in up to 16 colours!! ● No more to buy - just plug in and print!!

PACKAGE INCLUDES... STAR LC200 COLOUR PRINTER RRP £299.00
CENTRONICS PRINTER LEAD RRP £9.99
DATEL COLOUR PRINTER DRIVER SOFTWARE RRP £19.99
NORMALLY £327.98
COMPLETE PACKAGE NOW ONLY £239.00

COLOUR PRINTER DRIVER AVAILABLE SEPARATELY ONLY £19.99

- If you already have an LC10 or LC 200 Colour Printer we can supply the Driver separately.

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WE WILL DESPATCH YOUR ORDER QUICKLY & EFFICIENTLY TO ENABLE YOU TO START RECEIVING THE BENEFITS OF YOUR PURCHASE WITHIN DAYS, NOT WEEKS. ORDERS NORMALLY DESPATCHED WITHIN 48 Hrs. ALL PRICES INCLUDE V.A.T. UK ORDERS POST FREE/EUROPE ADD £1/OVERSEAS ADD £3. PRICES AND SPECIFICATIONS CORRECT AT TIME OF PRESS AND SUBJECT TO CHANGE WITHOUT NOTICE. CALLERS WELCOME - Please reserve goods by telephone prior to visit. ALL CHEQUES/POSTAL ORDERS MADE PAYABLE TO...

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ZIGGY'S MAILBOX



WRONG TACK

I have recently started buying your magazine and I have two questions. Are the games advertised available for 5.25 inch disc and are they compatible with the PC1640? Thank you.

David Mullins, Dunboyne, Co.Meath, Eire.

Ziggy: Ooer! I think somebody's got hold of the wrong end of the stick here, I'm afraid. ACU, as we all should know by now, caters solely for the CPC/PLUS users, not the PC owner.

Undoubtedly, many of the full-price games seen within these pages will also be available on 5.25 inch format, though just as many probably won't.

If you want to check out the PC games scene, why don't you have a peek at the Playtime section in our sister magazine APC, which caters solely for you owners with machines other than our beloved CPCs, though who'd want any other machine I really don't know.

WHERE'S BILLY?

Please, please please could you tell me where to get the totally fab and ultra-cool game, Helter Skelter. I've been trying for aeons with various software companies but, alas, 'twas to no avail, Billy the ball was a rare and endangered species in this solitary part of Essex.

Also, can you provide me with a list of PD libraries in Essex, as I would like to learn more about the public domain and software relating to it. Keep the adventure column in or I shall stop buying your magazine!

P.S. Can you ask Hairy about a Golden Axe hack please?

P.P.S What is the Cheapest colour printer on the market?

R. Sears, Chelmsford, Essex.

Ziggy: Good old Billy, eh? Well, if you caught the last issue, you should have found a special discount voucher for that self-same hero. Send that off to Audiogenic and you should soon be the proud owner of the epic Helter Skelter. Alternatively, and if you missed it, try giving Audiogenic a ring on 081 424 2244 and asking for a copy.

Moving on, I've passed your PD query on to Mr Tint, who promises he will deal with it forthwith. Hairy's also been forewarned that we need a Golden Axe hack (very appropriate term, what?), immediately and, concerning the printer, why not take a trip up to town, stroll down the Tottenham Court Road and see if you can't pick up a Star or a Citizen at reduced rates?

ALL ABOARD

As from 22.00 on the 1st March, a new bulletin board is on line. The Dock is running on a CPC6128 and has file areas that cover CPC/PCW machines.

As there are only a few boards in the country covering CPC in any depth, and none others in the North East that I have heard of, I think if given a little plug in your mag, it could prove popular to say the least.

The board runs with ROS software and runs through a CPC6128 with second disc drive formatted to 800K for files, with a 256K silicon disc unit for messages. The modem is an Amstrad SM2400 Auto-answer with speeds of v21, 22, 23, 22bis.

Within the board there are file areas which include:

CP/M	CP/M Software library
AMSDOS	AMSDOS Software library
GENERAL	GENERAL interest library
REQUEST	REQUEST a file not on BBS
MICROCOOK	COOKING with a microwave
PCW	PCW files/utilities area
Z80	Other Z80 machines area
FUNHOUSE	JOKES and funny stories
GRAPHICS	SIMPLE graphical effects

I hope, like me, that you think a board for the CPC/Plus machine is worth having.

The Dock is on-line from 22.00 to 08.00 daily on 091 454 6978.

Terry Youll, South Shields. (Sysop).

Ziggy: Well worth it indeed. Come on then everybody, what are you waiting for. Set your modems dialling and find out what goodies The Dock has in store for you.

COVER UP

I am 8 years old and I have had a 6128 for almost 4 years. I have been buying your mag for 3 years now and I think it is brilliant. But, I would like to complain about something that another reader complained about over a year ago in the January 1990 edition.

That something is COVER TAPES. Every time I go into the shops, I see shelves piled high with magazines like Your Sinclair, Crash and Sinclair User. Every single day, every single month, each of them has a big, flashy cover cassette chock-full of game demos, games and utilities. Even Amstrad Action, another Amstrad CPC mag (not nearly as good as yours, though), has the odd cover tape every year or so.

Since I had my computer, ACU has been the only magazine which doesn't have a cover tape every now and then.

I would be very pleased if you could possibly bring one out soon, say, in July or August.

Paul Roberts, Warwick.

Ziggy: 'Tis not for the want of trying, my friend. Last Christmas, we came so close to getting a series of cover cassettes that we even had the sellotape in our sticky mitts before, unfortunately, unforeseen circumstances put paid to our endeavours.

However, and it is a big however, the good news is that a brand new series of ACU cover mounted cassettes is planned for late Autumn, starting around October time. So, try and amuse yourselves through the summer months and be sure to keep your eyes peeled for some pretty cool offerings very soon.

PAST PATCHING

I am the proud owner of a CPC6128 and am currently transferring some of my old cassette software to run on disc.

To date, I have been fairly successful, but a problem I have encountered is that some of the programs are too long and encroach on the AMSDOS workspace area in memory.

Recently, however, I was reading a book in Assembly Language Programming for the Amstrad CPCs and came across a reference to a neat solution to this problem.

It referred to a software patch designed by Cliff Lawson in the Amstrad Computer User magazine, July 1985 issue. I would be extremely grateful if you, or any of your readers could supply me with details of this particular patch.

Alternatively, if anyone has an unwanted copy of the abovementioned magazine, I would be willing to purchase it if they would contact me on 0639 635214.

P. Roberts, Neath, West Glamorgan.

Ziggy: Unfortunately, due to the many changes in offices and companies, much of our early reference library is patchy, and, quite typically, does not include the issue in question. So, if any of our kindhearted readers out there can help Mr Roberts, I'm sure he would be eternally grateful.

ABOUT FACE

Could you please send me some information about the Multiface 2+ which would tell me how it is used? Would you also send me a list of stockists?

I have an Amstrad computer with an instruction manual but I would like a more detailed manual. Could you please tell me how I can get a Gemini Database or Beginners' Guide?

John Rajpal, Bury, Lancs.

Ziggy: For information about the Multiface 2+, a good idea might well be to get in touch with Romantic Robot, who stock many of the remaining multifaces. They should be able to give you the lowdown on this nice piece of machinery.

As for the beginners' books, many of the originals have now gone out of print but, if you have a good secondhand bookstore in your artea, it could well be worth your while having a shifty along their shelves.

Alternatively, your best bet would be to get down to one of the computer fairs, where second hand computer books go like hot cakes.

NO CONSOLATION

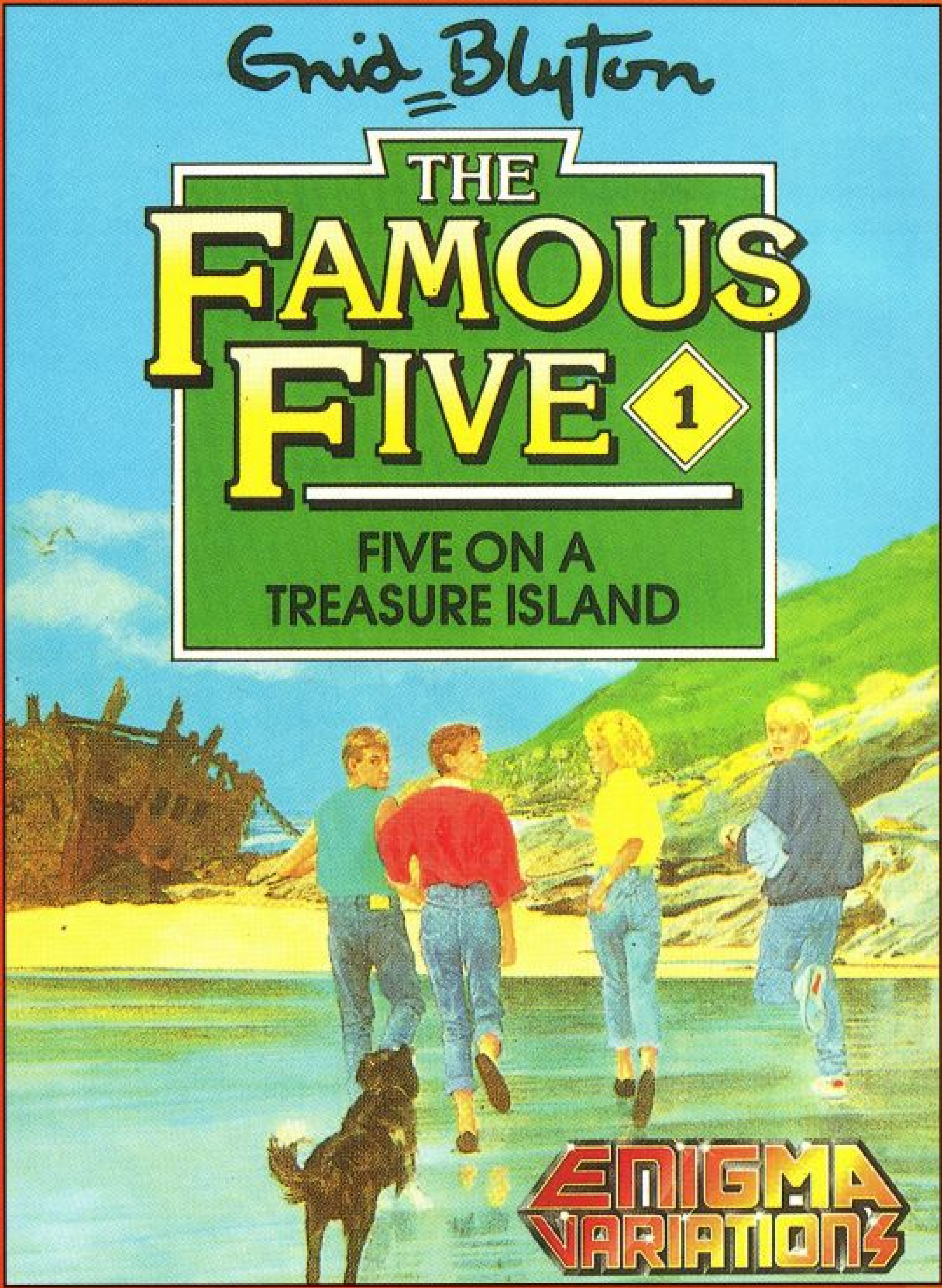
I am the owner of an Amstrad 6128 and I was wondering about this new console Amstrad are producing. Would it be possible to connect the console to the 6128, perhaps with a lead from the output of the console to the tape input of the 6128. Perhaps using the :TAPE comand, when you are given the "Press play then any key" prompt, you could then turn on the console and press a key.

Please, please try this and print my letter because I am dying to know if it is worth upgrading my 6128.

Matthew White, Haywards Heath, West Sussex.

Ziggy: Unfortunately, what you are attempting to do is very much a no, no. For starters, the console has no file operating system other than that which reads the Roms and, although, theoretically, there may be a very tortuous route to get where you want to go, we certainly couldn't go into it here.

COMPETITION



OK, who's feeling lucky? Well somebody had better be, because the winner of this month's fabulous Famous Five competition is going to walk away with an incredible set of Famous Five TV videos and books, penned by the ever popular Enid Blyton, courtesy of Enigma Variations and the Enid Blyton Trust.

So what do you have to do? Simple, the first Five computer game is Five on a Treasure Island, so all you have to do, is send in your most colourful drawing of a treasure map, with X, or whatever you like, marking the spot of the hidden treasure.

The best entry will take away the fabulous first prize but, don't worry, because those awfully generous people at Enigma have offered 10 copies of the computer game to the runners-up, Oh, you lucky people.

Don't forget to state your choice of format on your entry:

So, if you want to get hold of one of these huge prizes, get your crayons out and get your entries in on the double to:

ACU TREASURE HUNT
Sunnyside Cottage,
Carluddon, St. Austell,
Cornwall. PL26 8TY.

The editor's decision is final.

PROTYPE – THE RETURN OF ARNOR!

Did you think Arnor had developed their last CPC product?

We must admit, it was starting to look that way. But now we are pleased to announce a stunning new arrival - *Protype*. This provides *Protext* with the improved printing features that many of you have requested.

We honestly believe that it is not possible to achieve better quality output from a 9 pin printer than with *Protype*. Just look at the examples below - all printed on an elderly Amstrad DMP 2000!

Protype costs just £30 and is available on disc only. It works with *Protext* ROM and disc versions and may also be used as a stand alone program.

5 years after its original release Protext remains indisputably the leading CPC word processor. In the February 1991 issue, AMSTRAD ACTION said:

> *"Without doubt the most complete word processor available for the CPC ... Protext is very much a professional quality program."*

AMSTRAD ACTION speed tests show Protext to be many times faster than other programs, for example:

Replace operation		Delete 17k block	
Program A	- 94 secs	*Program A*	- 17 secs
Program B	- 74 secs	*Program B*	- 15 secs
Protext	- 5 secs	*Protext*	- 1 sec

Prices

Protype	£30	(disc, Protext not required)
Protext + Protype	£45	(disc)
Rombo ROM box	£20	(when at least one ROM is purchased)

ROM prices

Protext	£25	Promerge Plus	£20
Maxam	£25	Utopia	£20
Prospell	£20	Maxam 1½	£20
		BCPL	£20

Protype is a typesetting print enhancer designed to squeeze maximum quality from low-cost 9 and 24-pin dot matrix printers. This paragraph shows how **Protype** can work to a right-hand margin.

Liquid 293K	c_p/J kg^{-1} K^{-1}
① Acetic acid ($C_2H_4O_2$)	$1{\cdot}96 \times 10^3$
② Acetone (C_3H_6O)	$2{\cdot}21 \times 10^3$
③ Water$_{sea}$ (H_2O, salts)	$3{\cdot}90 \times 10^3$

[A] **Ganga común**, *«Pterocles alchata»*, 38cm
♀ con tres bandas en el pecho †
♂ faja pectoral castaña ‡

supports over 40 European languages including:

Anglo-Saxon	þ ð æ œ ā ē ī ō ū ǣ œ̄
Czech	á č ď é ě í ň ó ř š ť ú ů ý ž
Latvian	ā č ē ģ ī ķ ļ ņ š ū ž
Polish	ą ć ę ł ń ó ś ź ż
Turkish	á â ç ğ ı î ö ş ü

[B] just some of the non-ASCII symbols:

« » „ “ ” ¡ ¿ 1º 2ª ¶ §
© £ ¥ ¤ ¢ ½ ± ÷ × ↓ °
← → ♯ ♭ ß ð Đ þ Þ ø Ø
å Å æ Æ œ Œ ƚ Ŀ đ ħ Ħ

←*line graphics too*→

This actual-size printout was produced <u>in one operation</u> on a 9-pin printer using Arnor's Protext and **Protype**.

Protype (disc only) works on:
- ○ Amstrad CPC6128 [+]
- ○ **CPC664 & 64K expansion**
- ○ **CPC464 & 64K expansion & disc drive**

Uses less than 350 bytes of the main 64K.

PROTYPE IS VERSATILE:

- ● *multiple diacritics (accents) with any letter* (ḕ ṋ̄ ş̌ Ặ)
- ● *tabulates proportional text / micro-justifies spaces*
- ● **240 DPI × 216 DPI** *resolution on a 9-pin printer!*
- ● *works with all 9-pin or 24-pin Epson-compatible printers*
- ● *use from Protext, Basic or machine code*
- ● *includes the seven fonts used in this demonstration*
- ● *choice of character designs within a font* (page or page)
- ● mirror imaging of a line of text!
- ● ^{super}*script*, $_{sub}$ *script*, <u>*underline*</u>, [b] *box*, ⓔ *encircle*
- ● *kerning (spacing of 'difficult' character pairs* (AV)

Fæðer ūre, þū þe eart on heofonum	(Old English)
Ár n-atheir, atá ar nèamh	(Irish Gaelic)
Fader vår som är i himmelen	(Swedish)
Svargayehi vä̆ḍasiṭina apagē piyāṇeni	(Sinhalese)
Teve mūsų, kurs es danguje	(Lithuanian)
Pater noster, qui es in cælis	(Latin)

ARNOR

Releasing your micro's potential...

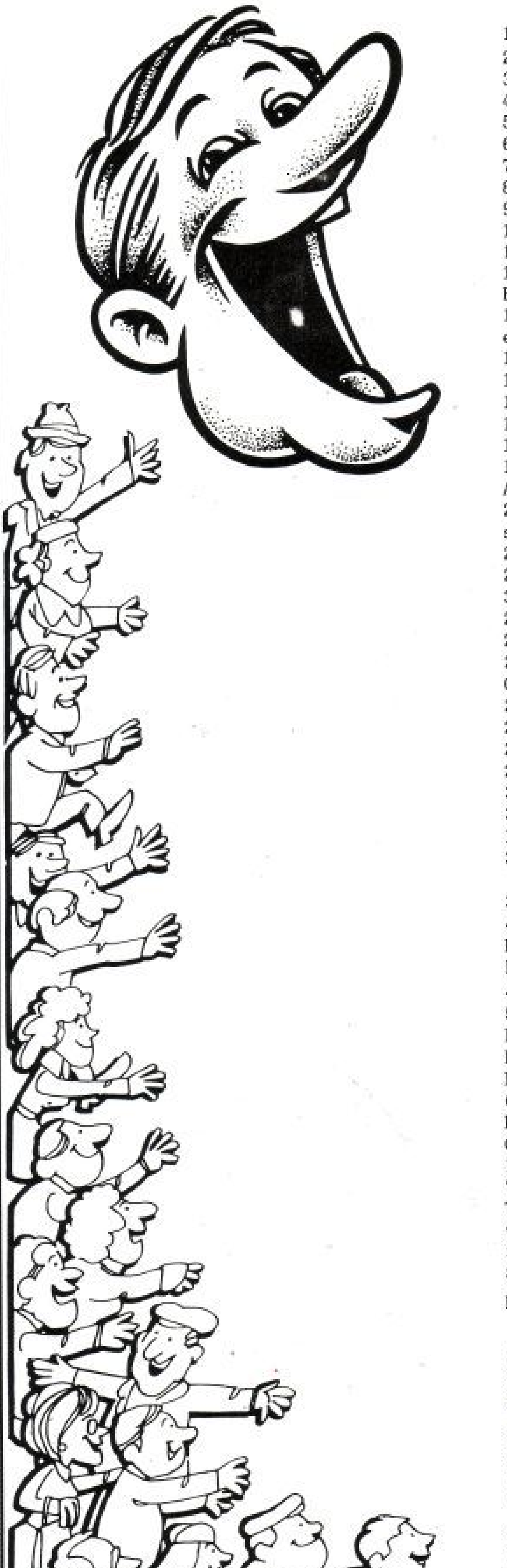
Arnor Ltd (ACU), 611 Lincoln Road, Peterborough PE1 3HA. Tel: 0733 68909 (24 hr) Fax: 0733 67299

All prices include VAT, postage and packing. Credit card orders will be despatched by return of post. If paying by cheque please allow 10-14 days for delivery.

AXIOM SPRITES

By David Hall

This has got to be Mr Hall's most ambitious project to date and, although not strictly a 10-liner, the program itself, excluding the instructions, is indeed close enough to include here. Just type it in, follow the comprehensive instructions and you have a fully operational sprite designer with superb features. Try it for yourself, it's a gem.



```
1 ' ARIOM SPRITES By David Hall of Stretford , Manchester.
2 ' (C) March 1991. Programmed exclusively for A.C.U.
3 '
4 ' This program allows you create up to 255 multi-coloured sprites
5 ' which can then be incorporated easily into your own programs !
6 '
7 ' DESIGNER COMMANDS :-
8 '===================
9 ' CURSOR KEYS - MOVE around sprite grid
10 ' <SPACE BAR> - PLOT A POINT in the current INK colour
11 ' E - ERASE (clear) current sprite          I - INK Select
12 ' S - SAVE sprites to TAPE/DISC             L - LOAD sprites from TAP
E/DISC
13 ' M - MIRROR image of sprite                R - ROTATE sprite by 90 d
egrees
14 ' N - NEXT sprite                           P - PREVIOUS sprite
15 ' C - COPY sprite to another sprite         Q - QUIT the program
16 '
17 ' USING THE SPRITES IN YOUR OWN PROGRAMS :-
18 ' ========================================
19 ' (1) .. Create your sprites using this designer and SAVE them to T
APE/DISC
20 ' (2) .. Add this to the start of YOUR program (it loads the sprite
s) :-
21 '
22 ' 10 IF PEEK(32000)=0 THEN INK 0,0:INK 5,15:SYMBOL AFTER 32:MEMORY
31999
23 '     :LOAD "sdata",32000
24 '
25 ' (3) .. To print a sprite first make sure you are already in MODE
0
26 ' (4) .. The command to print a sprite is :-
27 '
28 '      CALL 32000,Sprite number,X co-ordinate,Y co-ordinate
29 '                  (1 - 255)       (1 - 20)        (1 - 25)
30 '
31 ' e.g. CALL 32000,4,6,12 (prints sprite number 4 at co-ordinates 6,
12)
32 ' e.g. CALL 32000,0,6,12 (rubs out any sprite at screen co-ordinate
 6,12)
33 '
40 a$="sdata":h=8600:sp=1:st=32053:c=2:x=1:y=1:l=32000:w=1:MEMORY l-1:
READ b$:FOR j=1 TO LEN(b$) STEP 2:POKE l,VAL("&"+MID$(b$,j,2)):l=l+1:N
EXT:BORDER 0:MODE 0:PAPER 0:CLS:PEN 2:PRINT "   ArIoM  SpRiTeS":MOVE 8
4,380:DRAWR 464,0,8:MOVE 20,310,8:DRAWR 276,0
50 DRAWR 0,-142:DRAWR -276,0:DRAWR 0,142:LOCATE 3,22:FOR t=0 TO 15:PAP
ER t:PRINT " ";:NEXT:MOVE 28,22:DRAWR 580,0,9:DRAWR 0,60:DRAWR -580,0:
DRAWR 0,-60:PAPER 0:WINDOW#1,11,18,5,16:WINDOW#2,1,20,18,19:GOSUB 130:
PRINT#1," KEYS:-":PEN#1,6:PRINT#1:PRINT#1,f$
60 PEN #2,14:INK 0,0:LOCATE 1+x,6+y:CLS#2:bck=TEST(x*32,318-y*16):PAPE
R bck:PEN 7 XOR bck:PRINT CHR$(159):PAPER 0:LOCATE c+3,21:PEN 4:PRINT
CHR$(245):PEN 3:LOCATE 2,4:PRINT "Sprite":PEN 11:PRINT "  "sp:CALL &BB
18:LOCATE 1+x,6+y:PAPER bck:PRINT " ":PAPER 0
70 INK 5,15:x=x-(INKEY(1)=0)+(INKEY(8)=0):IF x=9 THEN x=8 ELSE IF x=0
THEN x=1 ELSE y=y-(INKEY(2)=0)+(INKEY(0)=0):IF y=9 THEN y=8 ELSE IF y=
0 THEN y=1 ELSE IF INKEY(47)=0 THEN bck=c:PLOT 124+x*4,144-y*2,c:PLOT
x*32,318-y*16,c:GOTO 60
80 IF INKEY(36)=0 THEN PRINT#2,"Loading":LOAD a$,w:GOSUB 130 ELSE IF I
NKEY(60)=0 THEN GOSUB 120:PRINT#2,"Saving":SAVE a$,b,w,h:CLS#2 ELSE IF
 INKEY(58)=0 THEN CALL w,0,5,17:GOSUB 120:GOSUB 130 ELSE IF INKEY(35)=

0 THEN LOCATE c+3,21:PRINT " ":c=(c+1) MOD 16
90 IF INKEY(50)=0 THEN FOR t=1 TO 8:FOR p=1 TO 8:e(p,t)=TEST(124+(9-t)
*4,144-p*2):NEXT p,t:FOR t=1 TO 8:FOR p=1 TO 8:PLOT 124+p*4,144-t*2,e(
p,t):NEXT p,t:GOSUB 120:GOSUB 130 ELSE IF INKEY(67)=0 THEN GOSUB 120:P
EN 1:PAPER 0:MODE 2:END
100 IF INKEY(38)=0 THEN FOR t=1 TO 8:FOR p=1 TO 4:a=124+(9-p)*4:e=144-
t*2:d=124+p*4:b=TEST(a,e):PLOT a,e,TEST(d,e):PLOT d,e,b:NEXT p,t:GOSUB
 120:GOSUB 130 ELSE IF INKEY(27)=0 AND sp>1 THEN GOSUB 120:sp=sp-1:st=
st-32:GOSUB 130
110 IF INKEY(62)=0 THEN GOSUB 120:LINE INPUT#2,"Copy to which 1-255:",
b$:a=VAL(b$):sp=a:st=32021+32*a:CLS#2:GOSUB 120:GOTO 60 ELSE IF INKEY(
46)=0 AND sp<255 THEN GOSUB 120:sp=sp+1:st=st+32:GOSUB 130:GOTO 60 ELS
E GOTO 60
120 t=st:j=&C510:FOR a=1 TO 8:FOR b=1 TO 4:POKE t,PEEK(j):t=t+1:j=j+1:
NEXT:j=j+&7FC:NEXT:RETURN:DATA DD460411200021157d1910FDE5DD460221ACBF1
E041910FD1E50DD46001910FDD10E08E506041A77231310FAE13E0884670D20EFC9
130 f$="L-Load  S-Save  N-Next  P-Prev  I-Ink   E-Erase R-RotateM-Mirr
orC-Copy  Q-Quit":PEN£1,11:CALL w,sp,5,17:FOR a=1 TO 8:z=1:d=144-a*2:L
OCATE 2,6+a:FOR b=1 TO 4:e=124+z*4:PAPER TEST(e,d):PRINT " ";:PAPER TE
ST(e+4,d):PRINT " ";:z=z+2:NEXT b,a:RETURN
```

INLAY PRINT

By Geoff Short

Here's another proggie to help you sort out your disc labels. Very clever it is too. Just type it in, save it, and you need never draw a blank again when you're looking for that all-important file you saved somewhere.




```
1 DEFINT a-z:PAPER 0:BORDER 0:INK 0,0:INK 1,24:INK 2,13:INK 3,26:MODE 1:PEN 3:j$
="TCLQ":FOR f=240 TO 243:j$=j$+CHR$(f):NEXT:INPUT"<C>ASS or <D>ISC";y$:INPUT"NAM
E";a$:a=LEN(a$):x=8:y=140:IF UPPER$(y$)="C" THEN m=82:n=20:p$="Cass" ELSE m=34:n
=23:p$="Disc" [C3]
2 INPUT"Load Y/N";y$:IF UPPER$(y$)="Y" THEN INPUT"Filename";f$:LOAD f$ ELSE PEN
2:WINDOW 1,37,1,n:FOR f=2 TO n*18.5:PRINT" "CHR$(143);:NEXT:WINDOW 37,40,2,23:CL
S:PEN 3:PRINT"        ===="SPACE$(12)"TEXTCHARLINE    QUIT    "RIGHT$(j$,4)"====
",,"1991 [3F]
3 PLOT 0,m-2,1:DRAW 0,398:DRAW 576,398:DRAW 576,m-2:DRAW 0,m-2:PLOT x,y,,1:WINDO
W 1,27,n+1,25:v=3:READ s,t,u:GOSUB 10:p$="INLAY-PRINT "+CHR$(164):READ s,t,u:GOS
UB 10:FOR g=1 TO 2:READ p$,s,t,u:GOSUB 10:NEXT:s=(17.5-a/2)*16:IF n=20 THEN p$=a
$:t=68:u=33 [3A]
4 v=1:e=1:i$=UPPER$(INKEY$):i=INSTR(j$,i$):IF i$="" THEN 4 ELSE PLOT x,y,1,1:ON
i GOSUB 5,5,6,10,5,5,5,5:CLS:PLOT x,y,1,1:GOTO 4:DATA 578,398,32,434,28,32,MENU,
578,330,32,GRS,586,130,32 [C5]
5 IF i=1 THEN PRINT:INPUT"TEXT : ",t$ ELSE IF i=2 THEN PRINT"CHARACTER":INPUT"AS
CII No.(32-255)";c:IF c<32 THEN RETURN ELSE INPUT"Quantity";d:t$=STRING$(d,c) EL
SE x=x+2*(i=7 AND x>2)-2*(i=8 AND x<574):y=y+2*(i=6 AND y>34)-2*(i=5 AND y<396):
RETURN [69]
6 IF i=3 THEN p=x:q=y:PRINT"LINE",,"FINISH - ENTER" ELSE INPUT "Width (1-9)";a:I
NPUT "Height (1-9)";b:PEN 1:PRINT t$:PEN 3:FOR f=0 TO LEN(t$)*16*a-2 STEP 2:FOR
g=0 TO 16*b-2 STEP 2:PLOT MIN(576,f+x),MIN(398,g+y),TEST(f\a,g\b),0:NEXT g,f:RET
URN [C2]
7 i$=INKEY$:IF i$="" THEN 7 ELSE PLOT x,y:IF i$<>CHR$(13) THEN i=INSTR(j$,i$):GO
SUB 5:PLOT x,y:GOTO 7 ELSE PLOT p,q,1,0:DRAW x,y:RETURN [10]
8 INPUT"PRINT Y/N";y$:IF UPPER$(y$)="Y" THEN WINDOW 1,40,n+1,25:CLS:WINDOW 37,40
,1,25:CLS:PLOT 0,m,1,0:DRAW 0,0:DRAW 576,0:DRAWR 0,398:DRAW 0,398:FOR f=0 TO 199
:PLOT 0,f*2,,2:DRAWR 640,0:NEXT:IF n=20 THEN GOSUB 10 ELSE TAG:MOVE s,22,,0:PRIN
T a$; ELSE END [D1]
9 DEF FNd=TESTR(2,0):TAGOFF:WIDTH 255:PRINT#8,CHR$(27)"3"CHR$(21):FOR f=0 TO 41:
PRINT#8,CHR$(27)"*"CHR$(2)CHR$(0)CHR$(2);:FOR g=0 TO 199:c=0+64*TEST(f*14,g*2)+3
2*FNd+16*FNd+8*FNd+4*FNd+2*FNd+FNd:PRINT#8,STRING$(2,c);:NEXT:PRINT#8,STRING$(11
2,0):NEXT:END [27]
10 IF e=0 THEN r=0:TAG:FOR f=t-1 TO t-u STEP-4:ORIGIN s,f,s,639,f,f+2:MOVE 0,r,v
,0:PRINT p$;:r=r+2:NEXT:TAGOFF:ORIGIN 0,0,0,640,0,400:RETURN ELSE e=0:INPUT"SAVE
 Y/N";y$:IF UPPER$(y$)="Y" THEN INPUT"Filename";f$:CLS:SAVE f$,b,&C000,&4000:GOT
O 8 ELSE 8 [4D]
```

ODDITY

By B K Whitelaw

Try this little proggie to set your eyes reeling. It's a neat graphics demo which can be adjusted by substituting mode 0 for 1 in line 10 to create different results. Weird.



```
10 CLS:MODE 1
20 MOVE 340,200
30 FOR i=1 TO 25
40 x=RND*640:y=RND*400
50 DRAW x,y:NEXT
60 MOVE 100,80:FILL 3
70 MOVE 250,150:FILL 14
80 MOVE 450,250:FILL 15
90 MOVE 200,300:FILL 7
100 MOVE 400,100:FILL 9:FOR q= 1 TO 2500:NEXT:GOTO 10
```

MOON PHASE

By Meirion Watkin

Another neat graphics demo for all you budding astronomers out there. Cleverly worked out, it should give you a feel for a bit of lunar-tic behaviour. (Sorry, couldn't resist that one.)

```
10      BORDER 1:MODE 1:INK 0,0:INK  1,8:INK  2,15:INK 3,26:FOR a=1 TO
        100:b=1+(RND*639):c=1+(RND*400): d=1+(RND*2): PLOT b,c,d:NEXT:
        FOR a= 0 TO 360: DEG: ORIGIN 320,200: DRAW 100*COS(a), 100*SIN
        (a),0:NEXT:FOR a=-80 TO 90:DEG:b=99+(RND*4)

20      PLOT b*COS(a), 101*SIN(a),3: NEXT: FOR a=-70 TO 80: b=95+(RND*
        4): PLOT b*COS(a), 101*SIN(a),3: NEXT: FOR a=-70 TO 80: b=91+(
        RND*4): PLOT b*COS(a),101*SIN(a),3: NEXT:FOR a=-70 TO 80: b=87
        +(RND)

30      PLOT b*COS(a),101*SIN(a),3: NEXT:FOR a=-70 TO 80: b=83+(RND*4)
        : PLOT b*COS(a),101*SIN(a),3: NEXT: FOR a=-70 TO 80: b=79+(RND
        *4):PLOT b*COS(a), 101*SIN(a),3: NEXT: FOR a=-70 TO 80: b=75+(
        RND*4)

40      PLOT b*COS(a), 101*SIN(a),3: NEXT: FOR a=-70 TO 80: b=71+(RND*
        4): PLOT b*COS(a),101*SIN(a),3: NEXT: FOR a=-60 TO 120: ORIGIN
        370,270: PLOT 12*COS(a),8*SIN(a),0: PLOT 12*COS(a+180),8*SIN(a
        +180),3: NEXT

50      FOR a=-90 TO 38 STEP 0.25: ORIGIN 0,150: DEG: PLOT 520*COS(a),
        150*SIN(a),3: PLOT 520*COS(a-1), 150*SIN(a-1),0: NEXT: FOR f=1
        TO 2000:NEXT f: FOR a=60 TO 91 STEP 0.25: PLOT 520*COS(a),150*
        SIN(a),3: PLOT 520*COS(a-1),150*SIN(a-1),0: NEXT

60      FOR f=1 TO 10000: NEXT f: GOTO 50

70      'MOON-PHASE by Meirion Watkin (15) 24th February 1991.

80      'GREEN-SCREENS RULE OK
```

SYMBOL

By Paul Fairman

Fancy something different for your on-screen characters? Try this little generation set and see how you fancy your new alphabet au Fairman.

```
10 MODE 0:SYMBOL AFTER 229:PRINT "ABCDEFGHIJKLMNOPQRSTUVWXYZ":PRINT:SY
MBOL AFTER 65:SYMBOL 65,254,254,194,254,254,194,194,0:SYMBOL 66,254.25
4,194,254.254,194,254,0:SYMBOL 68.254,254,254,194,194,194,254,0:SYMBOL
 67,254,254,192,192,192,192,254,0
20 SYMBOL 69,254,254,192,248,192,192,254,0:SYMBOL 70,254,254,192,192,2
48,192,192,0:SYMBOL 71,254,254,192,206,194,194,254,0:SYMBOL 72,194,194
,194,254,254,194,194,0:' V 1.3 - PROGRAM WORKS BEST IN MODE 0 - ONLY U
PPERCASE LETTERS
30 SYMBOL 73,60,24,24,24,24,24,60,0:SYMBOL 74,126,24,24,24,24,104,56,0
:SYMBOL 75,192,196,200,208,224,208,216,0:SYMBOL 76,192,192,192,192,192
,192,254,0:SYMBOL 77,254,218,218,218,218,218,218
40 SYMBOL 78,254,194,194,194,194,194,194:SYMBOL 79,254,230,194,194,194
,230,254:SYMBOL 80,254,254,194,194,254,192,192,0:SYMBOL 81,254,254,194
,194,198,226,254,0
50 SYMBOL 82,254,130,130,254,224,152,134,0:SYMBOL 83,254,192,254,2,2.2
,254,0:SYMBOL 84,254,24,24,24,24,24,24,0:SYMBOL 85,194,194,194,194,194
,254,254,0
60 SYMBOL 86,198,198,204,196,40,40,16,0
70 SYMBOL 87,218,218,218,218,218,218,254,0
80 SYMBOL 88,198,108,56,56,56,108,198,0
90 SYMBOL 89,194,194,194,254,24,24,24,0
100 SYMBOL 90,254,134,12,24,48,98,254,0:PRINT "ABCDEFGHIJKLMNOPQRSTUVW
XYZ":'    To return to normal type 'SYMBOL AFTER  229'
```

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You know, all this hack typing has made my fingers so long, they're almost twelve foot long! Only joking – or am I?

Guess who's been sitting up watching too much late night alternative comedy over a bowl of reheated rice pudding? Anyway, to get back down to the gritties, here's a little something sent in by Mick Caygill, with the help of his brother John and some tastefully arranged flowers, that should make Dizzy 4 a doddle. Here goes:

Backdoor key – To open castle backdoor

The handle – To get bucket out of well

Power pill (1st) – To kill ghosts in haunted swamp

Dagger (1st) – To cut goat loose

Dagger (2nd) – To cut leaf loose on Dylan bush

Big stick – Whack goat with stick to charge at troll

Black cat – Give to good witch for help

Bucket – Drop in geyser to get hot water

Drink me potion – To make Daisy smaller

Cloth duster – To rub ancient lamp to call genie

Burning torch – To light cauldron

Personal stereo – Give to Bard to get pipes

Sword in stone– Excalibur to kill queen

Something sticky – To get sword out of stone

Leaf – Ingredient for weedkiller

Pipes – To charm rat

Ancient lamp– To wake Dozy up with genie

Lightning rod – As above (use both)

Gold Cross – To make vampire move away from Dizzy

Poisoned apple– Ingredient for weedkiller

Weedkiller – To free Dylan in Bushy grove

Zaks ring – Throw in Cracks of Gehenna

Power pill (2nd) – To get out of hell

Trident – To kill Zaks

Eatme cake–

Empty milk bottle–

A bag of rubbish–

Help from and how to get it:

Good witch – Black cat (Sue will make weedkiller)

Denzil – Throw hot water over him and he'll give you stereo

Prince Charming– Take Dora frog (kisses her)

Bard – Give him stereo and he'll give you pipes to charm rat

Genie – Frees Dozy with a shock (with lightning rod)



Fourth Time Lucky

Poke paradise is here as Hairy gives you the edge on Dizzy 4 amongst other delights.

When you have freed all of Dizzy's friends and relations, go back to volcano to get help and to get the trident off Haves.

There you have it, folks. There are one or two little bitties missing, but there's enough there for your to be getting on with I think.

Moving on to owners of that beloved instrument, the Multiface, here are a few important addresses to note down in your diary: See below.

That little lot was sent in lovingly by Stephen Matthews. Didn't he do well? By the way, for those of you still on the hunt for those elusive machines, I'm told there are a few still on the prowl and you could even try elsewhere in this illustrious rag for a secondhand one. There, that should keep the ed. happy and prove that I do read other bits apart from my own. Well, sometimes that is.

Aah, Summer is nigh upon us again, you know and, as you prepare to leave for distant shores and sun, sea and sand, just spare a thought for me here, cooped up in my cage with only a computer and colouring book for company.

Seriously though, the colouring book isn't too bad and, if the likes of Graham

GAME	ADDRESS	POKE	EFFECT
Turbo Outrun (T)	15ED	00	Infinite credits
Dizzy (T)	751C	00	Don't die
Twin Turbo V8 (T)	818B	00	No corners
Super Trux (T)	9991	00	Stops clock
Super Trux (T)	9961	00	Stops clock
Super Trux (T)	9A25	A7	Never crash
Wonderboy (T)	616D	00	Infinitelives
Space Harrier 2 (T)	1003	00	100 lives
Marauder (T)	030E	FF	255 smart bombs
Marauder (T)	0309	FF	255 lives

Smith keep up the good work, I'll be kept busy right through into the rainy season again.

Out of a veritable casketload of tricks, Graham's first offering comes in the form of invulnerability for that conquering hero Turrican. It's for the disc version, so plug this little lot in before you get blasting and you should start viewing the opposition in a whole new light. Try it, you might even like it a little.

```
1 'Turrican (disc)
2 'By Graham Smith
3 'Infinite vitality
4 'Save to & run from disc
5 '
10 FOR j=0 TO 107:READ a$
20 x=VAL("&"+a$):y=y+x
30 POKE j+34567,x:NEXT j
40 IF y<>10657 GOTO 110
50 INK 1,1:CAT:MODE 1:INK 1,24
60 PRINT"Insert game disc ";
70 PRINT"then press any key"
80 MEMORY &3FFF:CALL &BB18
90 LOAD"disk",&4000
100 CALL 34567
110 PRINT"data error
120 DATA 01,00,04,11,70,01,21,00
130 DATA 40,ed,b0,f3,06,14,c5,2a
140 DATA 71,87,23,23,e5,e5,11,08
150 DATA 00,19,7e,0b,20,01,23
160 DATA e5,23,7e,fe,20,20,fa,d1
170 DATA e5,22,71,87,eb,ed,52,2d
180 DATA 2d,7d,e1,d1,ed,52,06,00
190 DATA 4d,0c,0c,e1,c5,01,20,00
200 DATA 51,58,d5,ed,b0,e1,c1,09
210 DATA 77,23,36,c9,cd,00,20,c1
220 DATA 10,bc,21,30,03,36,c3,23
230 DATA 36,67,23,36,87,c3,eb,02
240 DATA af,32,f0,04,31,00,01,c3
250 DATA b8,01,6f,01
```

Once you've cooled down after that little lot, Graham's also got the lowdown on our awesome friends, the Toonage Mightn't hear a myrtle, or however it goes.

If you've had problems, like I did, with getting things done within the time limits, fear no more. With this little lot, time no longer is of the essence, and you needn't worry about running out of steam either, as Graham's got that one licked on disc too.

Whoever said cheating took the fun out of games? Forget it. This way round the action's twice as good!

```
1 'Teenage Mutant Hero Turtles
2 'By Graham Smith (disc)
3 'Infinite energy & time
4 '
10 DATA 2a,09,00,22,7a,00,21,6d
20 DATA 00,22,09,00,c9,f5,af,32
30 DATA 75,62,32,ae,62,32,bc,75
40 DATA f1,c3:FOR j=96 TO 121
50 READ a$:x=VAL("&"+a$):y=y+x
60 POKE j,x:NEXT j:MODE 1
70 IF y<>2391 GOTO 110
80 PRINT"Insert game disc ";
90 PRINT"then press any key."
100 CALL 47896:CALL 96:RUN"disk
110 PRINT"data error
```

See what I mean? Absolutely. The next one Graham's had a long, hard look at, is Zepellin's excellent budget blast Skatin' USA, only this time around, when you get out on the streets after the bad guys, you need never run out of ammo, or lives for that fact. Try it and see for yourselves, it sure adds a whole new dimension to skateboarding. This one's for the tape version, by the way.

```
1 'Skatin' USA (tape)
2 'By Graham Smith
3 'Infinite energy
4 'Infinite ammo
5 '
10 DATA 06,00,11,7e,80,cd,77
20 DATA bc,21,70,00,22,ef,80
30 DATA eb,e9,af,32,76,49,32
40 DATA d3,4b,c3,66,1b
50 FOR j=0 TO 25:READ a$
60 x=VAL("&"+a$):y=y+x
70 POKE j+96,x:NEXT j
80 IF y<>2879 GOTO 100
90 MODE 1:CALL 96
100 PRINT"data error
```

You know, I never could get the hang of that skateboarding mullarkey. I mean, I went out and got the whole works, pads, helmet and all but, I felt such a cissy wearing the old hard hat that I never wore it, resulting in numerous cranial bumps, slight concussion and a dizzy vow never to take to four small wheels again.

Which bring me very, very tenuously indeed onto Graham's last bit of nifty fingerwork this month. Yes, he's been at the Dizzy Collection in no small way. Taking our little egg-shaped friend into most of the games in the compendium, there's no more worries about death by drowning, fire, cages and sea creatures. In fact, there's no worry about death at all on some of the games, as you get infinite lives to boot.

Save this little lot to tape and you're away.

```
1 'Dizzy Collection. By Graham Smith.
2 'Also for original games, except
3 '(perhaps) Dizzy 4.
4 'Dizzy, Dizzy 3, Dizzy 4 and
5 'Fast Food – infinite lives.
6 'Dizzy 2 – immunity from drowning,
7 'flames, cages and sea creatures
8 'Save to tape, not disc.
9 '
10 DATA 11,00,01,43,cd,77,bc,d5,eb,cd
20 DATA 83,bc,cd,7a,bc,e1,7c,fe,3a,28
30 DATA 4e,fe,af,28,25,01,17,00,11,85
40 DATA 8a,21,27,be,ed,b0,c3,91,8a,21
50 DATA 00,c3,22,4b,3e,11,000,40,c3,71
60 DATA be,21,19,8b,36,c3,23,36,85,23
70 DATA 36,8a,21,47,be,22,c0,af,c3,80
80 DATA af,21,0a,7e,fe,20,3e,18,20
90 DATA 06,77,32,92,8a,18,06,32,1c,8b
100 DATA 32,a4,8a,32,2e,01,c3,40,00,2a
110 DATA 38,bd,22,9e,be,21,37,bd,36,c3
120 DATA 23,36,7e,23,36,be,11,00,bb,21
130 DATA 40,00,e3,c3,4a,3a,21,0c,57,7e
140 DATA ee,3d,20,03,77,18,14,21,63,a0
150 DATA 7e,ee,3d,20,03,77,18,09,af,32
160 DATA 3a,95,3e,c9,18,95,cf
170 FOR j=48640 TO 48797:READ a$
180 x=VAL("&"+a$):y=y+x:POKE j,x:NEXT
190 IF y=15354 THEN CALL 48640
200 PRINT"data error
```

To round off this month's little foray into Hackland, David Long has been busy digging out a few passwords in his spare time.

First up in his long line of discoveries is Bounty Hunter, where pressing ESC and typing FIZBANG should get you infinite lives for your troubles.

Anybody given up and gone to sulk in a corner over Pipe Mania? Not any more. Try these passwords for size: Fine, News, Fail, Sail, Eric, Tape, Slow and Ache. That should help out a bit.

For Exolon, redefining the keys as ZORBA should help you to scratch that unreachable itch inside your exo-suit and last, but by no means least, fans of that delectable blast Agent XII would do well to remember these helpful words: LOUDHAILER GOOSE and PITIFUL LOBSTERS.

I don't know, all I can say is that some people have very warped senses of humour. It makes my late night entertainment forays downright sensible by comparison. Oh well, there's nothing for it, now where did I leave that rice pudding can?

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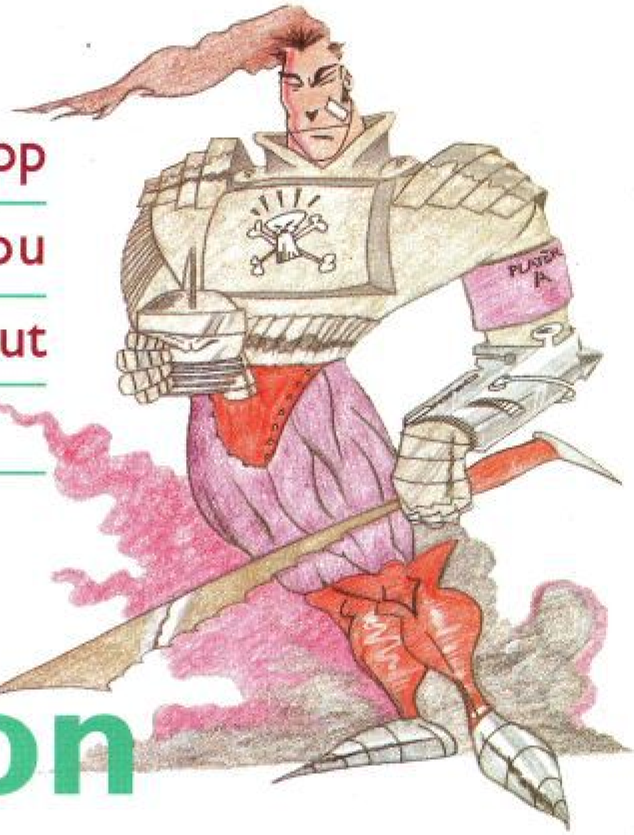
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News, hints and top tips for all of you adventure freaks out there.

The Dungeon Master



Welcome once again to the Dungeon. A rather nice letter arrived this month from Angela Allum of Bracknell, who enquired if my dungeon is cosy? Well Angela, I suppose it all depends on what your levels of expectation are. If you consider that cold stone walls dripping with damp and festooned with all manner of evil items of torture is your idea of cosiness, then I guess you'd be pretty happy here. For myself, I just love it but I can't answer for the poor suffering fools who are currently being corrected for their previous misdemeanours. My squad of Amazonion "minders" do so enjoy their work!

Angela also asked for some help in *The Island.* I have therefore started a new section at the end of this article which will be reserved for problems that I cannot answer immediately. I think *Help Me!* seems like a reasonable title.

Dave Havard wrote again and said that he would've written sooner but he couldn't find the address to send it to. (?) Well, er yes, Dave. Just in case anybody else is having the same trouble, the address to write to is the one that appears just inside the front cover. No, don't dash off there now to have a look, I'll make it simple for you and print it here:

The Dungeon Master. c/o Amstrad Computer User, MSM Ltd. MCPC Ltd. Panini House, 116-120, Goswell Road, London. EC1.

So if the only reason that you haven't written in yet is because you didn't know where to write, I can now expect a giant mailbag next month, can't I? Perhaps you want to write in to the column and make me happy but you just can't think of anything to say? Well how's this for a thought provoker or two: The *Adventurers Club Ltd* have an annual ballot when the members vote for their favourite Adventure of the Year. This years results have just been announced and the winner was *Chaos Strikes Back (Mirrorsoft.)* Now this is a Role Playing Game and at the time of writing, it is only available to the 16 bit owning fraternity. Now what are your feelings about this situation? Would you like to tell *Mirrorsoft* through these pages, that you want to be able to play their award winning game on your CPC? Or perhaps you have certain views about RPG's or even about 16 bit games in general. Right, there's a few starters for you and I hope to hear from you soon.

Going back to Dave Havard's letter, he tells me that he is currently writing a book entitled "The Beginner's Guide".



This is going to be an in-depth guide to everything that you need to know about how to play adventures, aimed primarily at the beginner but it will also include many advanced features for the more experienced player as well. It should follow on nicely from my article about starting adventures that appeared in the April issue. The price is expected to be around £3 and I'll give you more details as and when they become available.

Want some exciting news? Are you interested in not only having some new CPC adventure releases to look forward to but also a special money saving offer, exclusive to ACU readers as well? Then take a look at this letter from Larry Horsfield of FSF Adventures, Charlton, London:-

"I was so pleased when I saw that there are some Adventure Pages in ACU once again. My name is Larry Horsfield and I am an adventure writer, who has so far released three successful adventure games on the Spectrum. I thought I would write and tell ACU readers that all my adventures will shortly be available on disc for the CPC. These will be *Magnetic Moon* (3 parts,) *Axe of Kolt* (4 parts) and another 3 parter, *Starship Quest.* I also have three other CPC adventures underway and they should all be finished by late 1991, early 1992. ACU readers can look forward to exclusive special offers, as all these adventures are released."

Well that's really great news Larry and on behalf of all our readers, thank you. I have been given a sneak preview of the first two adventures and I can tell you that they are of a very high standard indeed. Written using *PAW*, they have a strong story-line and are full of interesting puzzles. Further details on price and availability will appear as soon as I receive them. Definitely worth looking out for.

One of the biggest events for adventure fans ever, happened last year in September. The occasion was the first ever convention organised by the Adventure Probe magazine. Probe is a monthly magazine edited by Mandy Rodrigues and is full of adventure related articles, covering all makes of computers. It has a strong (and vocal) CPC readership. The convention was held in Birmingham and was attended by over 100 avid adventurers from all over Britain. I was there myself and can confirm that it was a truly remarkable day, when there was only one topic of conversation.

Well the latest news is that plans are well in hand to repeat the event this year, on October 26th. As last year was the first time the convention had taken place and was arranged rather hurriedly, a lot more people are expected to turn up this year, so tickets must be

bought in advance and priority will be given to Probe subscribers. For further information on the convention and subscription details of the magazine, you can contact Adventure Probe at:-

67 Lloyd Street, Llandudno, Gwynedd, LL30 2YP.

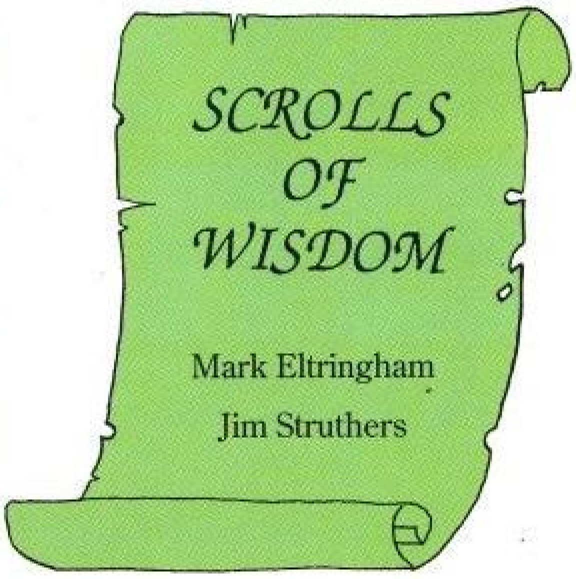
Scroll Of Wisdom

The following good people who are all experienced adventure players, have kindly offered to help any readers who are having difficulty with a particular problem. Please do not ask for full solutions and treat the "Scrollers" with due respect. Either telephone *ONLY* during the times shown or include a stamped SAE if you write to them.

Mark Eltringham. 39 Gargle Hill, Thorpe St Andrew, Norwich, Norfolk. NR7 0XX. *Mark has sent me an enormous list of games that he has completed. If you can't find your problem game here, you must be playing arcades!*

Adventure Quest, Aftershock, Angelique, Apache Gold, Arnold Blackwood 1, 2 and 3, Ballyhoo, Beerhunter, Bestiary, Big Sleaze, Black Fountain, Black Knight, Boggit, Bored of the rings, Brawn Free, Bugsy, Case of the mixed-up Shymer, Castle Blackstar, City for Ransom, Classic Adventure, Colossal Adventure, Colour of Magic, Cricket Crazy, Crispin Crunchy, Crystal Theft, Cursed be the City, Cutthroats, Dodgy Geezers, Doomlords, Dracula, Dungeon Adventure, D.A.A., Emerald Isle, Fantasia Diamond, Federation (Quan Tullah), Forest at Worlds End, Football Frenzy, Frankenstein, Galaxias, Gnome Ranger, Gold or Glory, Hermitage, Heroes of Karn, Hitchhikers Guide, Hollywood Hi-jinx, Hunchback 3, Ichor, Imagination, Ingrids Back, Island of Chaos, Jewels of Babylon, Kentilla, Kingdom of Speldome, Knight Orc, Labyrinth, Lancelot, Life Term, Lords of Magic, Lord of the Rings, Lords of Time, Lost Phirious 1 and 2, Microman, Mindfighter, Mindshadow, Mordons Quest, Mountains of Ket, Mural, Mystery of Indus Valley, Necris Dome, Neverending Story, Panic beneath the Sea, The Pawn, Planet of Death, Price of Magik, Project Annihilation, Quest for Golden Egg Cup, Questprobe 3, Rebel Planet, Red Moon, Return to Eden, Rigels Revenge, Robin of Sherwood, Scary Tales, Scapeghost, Seabase Delta, Seas of Blood, Sharpes Deeds, Ship of Doom, Simply Magic, Smashed, Smugglers Cove, Snowball, Souls of Darkon, Spytrek, Star Wreck, Stryptiche, Subsunk, Talisman, Talisman of Power, Terrormolinos, Top Secret, Warlord, Werewolf Sim, Winter Wonderland, Wizbiz, Wolfman, Worm in Paradise, Zed and Zork 1.

Jim Struthers. 112 Disraeli Street, Cowpen Quay, Blyth, Northumberland. NE24 1JB. *Jim has been keeping his 464 busy with:-* Aftershock, Atalan, Beerhunter, Black Knight, Big Sleaze, Castle Blackstar, City for Ransom, Dracula, D.A.A., Escape from Khoshima, Emerald Isle, Frankenstein, Grue-Knapped, Gremlins, Helvera, Heroes of Karn, Hunchback 3, Imagination, Jewels of Babylon, Message from Andromeda, Microman, Mindshadow, Neverending Story, Nova, Orifice from Outer Space, Panic beneath the Sea, Project Annihilation, Price of Magik, Rick Hanson, Seabase Delta, Shymer, Souls of Darkon, Talisman of Power, Top Secret, Village of Lost Souls, Werewolf Sim, Wolfman and Winter Wonderland.





If you would like to see your name and address or phone number listed here, then just send me your details and a list of complete games.

Hints and Tips Department

It's That Man Again! For generosity above and beyond the call of duty etc, our grateful thanks are once again extended to Dave Havard for these useful tips:-

GUILD OF THIEVES

1) There is an exit behind the pile of junk in the junk room.
2) Feed the bear with the fish after you sprinkle it with the rat poison.
3) To get the fish: At the moat, tie the cotton to the cue, put the maggot on the needle, then lower the needle.
4) The maggot can be found under the gate-keeper's bed.
5) In the caves, don't believe all you are told! Once past the iron bars, go as far as you can and lower the rope ladder. This is best done BEFORE you pull the statue in the temple.
6) Put the lute into the sack as soon as you buy it from the Miller.
7) Examine the rats before the race. Then bet on the grey rat.

If you have any clues or hints that you would just love to pass on to your fellow adventures, or if you have a particular game that is driving you up the wall and would like to see some help printed here about it, then just write to me here at ACU and I'll take care of it for you.

Finally, as promised at the start of this exercise in joining words together, here is the all new *Help Me!* section. If you have a problem that you just cannot find the answer to, or if you know the answer to somebody else's plea, then please write in and I'll print it here.

Help Me!

Angela Allum is playing *The Island* by Ken Bond. She has entered the pyramid but cannot light the lamp. She has asked the old man in the hut for his matches but he won't give them to her. Just to prove that this is a "Real Time" column I can now provide the answer. The problem is Angela, that the lamp belongs to the old man and you've nicked it! So drop the lamp in the previous location so he doesn't know you've got it and then give him your shirt. He will give you the matches in return. You will now be able to collect and light the lamp to find your way inside the pyramid.

That's it. See you all again next month. Happy adventuring.



Our very own favourite Doc laments as he announces his departure from these hallowed pages – alas, 'tis true.

APPLICATIONS ADVICE

The Doc does his final stint in the Applications Clinic with a retrospect of the last two years, and bids a fond farewell to ACU as he moves on to APC. The day has finally dawned (no pun intended) when I must, with some regret, pack up my applications into a large trunk and take my leave of ACU. The bright lights of editorship on Amstrad PC magazine beckon ever louder, and I'm afraid that there just isn't time to do everything I'd like to do. Enough of this, and on with the plot!

That train problem! From George Ho-Yow, a regular Maxwell House user, who hails from Hayes in Middlesex (how apt for a comms hobbyist!): It is with some concern that I noticed you have relegated the Applications column to the back of the mag, almost as an afterthought.

No reference on the contents page. I do hope that you are not thinking of dropping it.

Anyway, to address the main point of this letter.

The task is not as difficult as it may appear if approached in a simple manner. For input to the CPC the JOYstick Socket is the best option. All that is needed is a diode matrix system which is a piece of cake.

A few lines of BASIC can be used to demonstrate how easy it is to access the input signals, but there is a limitation that only one switch can be operated at a time. However, if there is a need for multiple switching then perhaps this can be resolved by rearranging the diode matrix to form the correct combinations. Thirty one switches can be recognised using JOY(1), and if necessary another 32 can be accessed using JOY(0).

The demo prog is:

```
10 WHILE 1>0 'loop forever 20 PRINT JOY(0);: FOR X%=1TO 500: Z=1.1: NEXT ' delay FOR-LOOP 30 WEND
```

For the output, I must confess that the design is purely theoretical, due to lack of facilities and equipment. The idea is to use the PRINTER PORT for output.

Again, the BASIC code is simple:

```
10 PRINT #8, CHR$(&20); CHR$(N%) ' where N% = 1 to 15 20 PRINT #8, CHR$(0);CHR$(N%) 'where N% = 17 to 31
```

Only 30 relays can be driven with the circuit shown, but the principle can be extended for up to 60.

The least significant four bits are decoded by a 4067BE chip into 15 relay sections. Decode of zero is not used as this, in effect, deselects a chip, else the previous selection will be compounded with the new selection. The D4 line from the printer port is used to select one or the other chip.

I do hope this will be of help to the Railway Modelling enthusiasts. It would be nice to see the final product in action, or at least read of its successful application.

DD Well – what can I say? I've looked at the diagrams, and, frankly, the electronics looks straightforward – I think even I could manage that, and I haven't had a hot soldering iron in my mitts for ages other than for making up the odd lead. But there's more. Our esteemed editor (all kneel) informs me that he has in his sticky palm what amounts to a complete article on the subject. Grand! I shall read it with pleasure, and foresee a few more hardware projects coming out of it.

Short Query

Almost a compatriot of mine, Geoff Short, from Guisborough in Cleveland, the very border town of God's chosen county (that keeps both the Yorkshire folk and us benighted souls in Tyne and Wear happy) has a reason for his first question that he doesn't want to let on about.

I wonder if you could answer a couple of queries for me? Could you please tell me which commands the 464/664 do not have compared with the 6128? I know about FILL MASK and GRAPHICS PEN/INK, but are there any others?

Secondly, how close should I store discs to my colour monitor? Would it be unwise to put them by the side? Any advice would be appreciated.

I would like to say that ACU is a very good magazine. The articles are entertaining and well written, but are often spoilt by typing and publishing errors. When these occur in text they are annoying, but in program listings they are awful. The worst cases of this have been the music series and the Return of Auntie John. Could you please take all listings directly from the printer, as you do for 10 liners? This would make your readers more willing to type in the listings for programs.

DD: To a large extent, it depends on which way you're writing. If your BASIC code is being written on a 6128 and you want it to run on all CPCs, then you do have to be careful. I have to be honest, and say that I had to get my head inside the reference books for this one. The reason? I haven't had a 464 for ages, and didn't program it much in the few weeks I had it. Come to think of it, I do n't do much programming on my 6128s either. As far as I can see, you've got the important ones. No more spring to mind, but I expect my successor will be inundated with letters pointing out that I'm wrong! Now, as for storing discs close to the monitor. I'll give you my experience, and you can take it for what it's worth. A couple or three years back, I bought a thing called a 'Plonker Box'. To be honest, the name tickled my fancy (where I come from, a Plonker isn't just a long streak of misery on Fools and Horses). Anyway, the idea behind this thing is to stick it to the side of your monitor, and slip your work discs into it as you're clattering at the keyboard. It handles 3" floppies as well as it handles 3 1/2 and 5 1/4" discs, and is, in fact, quite a handy doo-hickey to have around. One has been stuck to the side of my monitor for quite some time now, and it always has a disc or two in it - not just on my CPC, either. I've got one on my ST, and one on one of my PCs. So far I haven't had a corrupted disc an any machine because of it.

That's my experience. Theory contradicts it at every turn. Monitors thrive on magnetic fields and electric currents. They hum alarmingly (well, I can hear them) and attract dust due to static electricity putting a charge on the screen. The CPC has the added danger of a ruddy big power supply being bolted inside it, with its attendant magnetic fields and high voltages, so the last place in the world, so theory tells us, that you should bung a disc is close to it. I'm sitting on the fence on this one. I've given you both sides of the story - make your own mind up!!

Now, literals and typos. If I had a penny for every time a literal had crept into my work, I'd be a very rich man. Well, alright then, I could afford to buy a box of discs. The thing is, there are more places a typo can sidle into an article than you might credit.

For a start, take your average spelling checker. I can type 'FROM' cor-



rectly ninety nine times out of a hundred, but, particularly when I'm in full flow, it sometimes ends up as 'FORM'. When I check what I've written, after the spelling checker's had its way with the article, I see what I think I've written, not necessarily what's there.

Then the editor gets hold of it, after I've squirted it over the phone lines. Sometimes a few glitches creep in while the words are travelling from my computer to the other end, but not often. Anyway, said editor loads the article into his word processor, and proceeds to do what he gets paid for. Things are usually OK at this stage. What happens next depends to a large extent on how the magazine is produced.

The old method, called cut and paste, entails a 'master' print of the article with the column widths and the right typeface. Then some poor soul sits with a sheet of paper on a large white board, and cuts the thing up, so he can stick it back down in the right places. All kinds of things can happen here, especially if the person doing the task doesn't understand what's being said in the article. That's happened to my work many times.

Sometimes, the edited article is faxed to a typesetting house, where it is copied by a typist onto the typesetting machines. Grab a fax sometime and see what they're up against. Lots of mistakes creep in in this situation.

As for listings, well, mega listings are usually saved as ASCII format files, and inserted into articles, much like the code in George Ho-Yow's letter above. So, the same problems apply. Believe me, as a baby editor myself, I know how infuriating it is for any editor to see typos in his mag. I'm sure CK is horrified every month when he spots the mistooks that have slipped through the net.

Time to go

Well, that's it. My last Applications Advice at an end. I've been with the magazine for ages now, beginning with Computing with the Amstrad CPC magazine before it became part of ACU a couple of years ago – I think only VAX pre-dates me. But, all good things must come to an end, and, as I said at the top of the piece, I've decided to concentrate on DOS machines as editor of APC and PC Solutions .

I want to thank all the many contributors to AA (that's Applications Advice, not the other mag) over the months who have made life interesting and entertaining for me. Some of them have caused me no end of sleepless nights trying to puzzle out the answer to a problem, some of them have been trivial. I must pay special tribute to those folks who have written in to help me out when I was well and truly stuck – not an uncommon occurrence.

I hope that whoever takes over Applications Advice enjoys his (or her) time on the column as much as I have, and that you, the readers, set some gnarly problems for the new incumbent to solve. One thing I know for sure, whoever it is will have more printer and int erface problems than any other kind.

I'd like to think that I've managed to be of some service to the readers of ACU, in however small a way, and I'll miss writing the column. So, for the last time, that's the lot from me for this month. Take care of yourselves, and as my errant bruvver would say, Li ve long and Prosper! David Dorn.

Glynne Davies explores the beauty of sub-routines on the way to mastering BASIC.

WORKING INSIDE-OUT

SUB-ROUTINES

A-Sub-routine is an area of code which can be used at any time from anywhere within the program. The length of a Sub-routine can be as little as one line or almost the same length as the program in which it is used. Sub-routines perform tasks, from the beginning of this course I have used Sub-routines to wait for a key press, display information or sort data.

MODULA APPROACH

A Sub-routine is a module, a piece of code which performs a certain task. These modules can be saved onto disc or tape and added to a new program if required, the successful programmer will have a library of Sub-routines on disc or tape and when approaching the start of a new program will merge together all of the Sub-routines required allowing for the fast development of the program.

NEW KEYWORDS

GOSUB n Send the program flow to line n, when the sub-routine is complete return back and continue on to the next command. eg GOSUB 1000:CLS The flow of the program would be directed to line 1000, when the sub-routine starting at line 1000 is complete the flow would return to the next statement, the CLS.

RETURN The End of a Sub-routine. When the flow reaches a RETURN the sub-routine is complete and the flow is sent back to the next statement after the GOSUB.

CALL address A Machine code Sub-routine. Acts the same as a BASIC sub-routine, the flow returning when complete. The address is the memory location of the code. This command allows the BASIC programmer to combine BASIC code with Machine code. NOTE: You must know the correct address before you use CALL. A Call to the wrong address will cause a "Crash", which will mean you will have to switch off the computer and start again.

MERGE "filename" Take a file from disc or tape called "filename" and add it to the file already in the memory. NOTE The line numbers of each file must be different and the file being Merged must be in ASCII form, see below.

SAVE "file",a Save a program listing in ASCII form (American Standards Code 2). If a file is saved in this way it can be loaded into a word processor, it must be saved in this way to Merge it into another program. A file saved in ASCII form can be Loaded and Run as normal.

PEN n Text and graphics foreground colour. (MODE 0 - 16 pens; MODE 1 = 4 Pens; MODE 2 = 2 pens.

INK p,n Choice of colour n in a certain PEN p (Colour choices from 0 to 26) or for flashing colours INK p,n,c flash between n and c.

PAPER n Text and graphics background colour. If CLS is used after a Paper change the whole screen will change to the colour set by PAPER

KEY 128,"CLS"+CHR$(13) This command redefines a function key. (The keys on the numeric pad). If this command is Entered, key 0 on the numeric pad is redefined to clear the screen (CLS) the CHR$(13) is the same as if Enter is pressed.

Writing Basic in Modula Form

The next program is a demonstration of the colours available on the Amstrad. Two routines will first be written, checked and then saved to disc or tape as Sub-routines. A third program will then be developed which will use the other two routines.

Module 1

Type in the following:

```
1000 REM Key press routine for
MODE 0
1010 mess$="Press Any Key":REM
Message can be changed to suit
program
1020 LOCATE (20-LEN(mess$))/
2,22:PRINT mess$:REM Display
message in the centre on line 22
1030 k$="":WHILE
k$"":k$=INKEY$:WEND:REM Wait
for a key press. k$ will equal key
pressed.
1040 PRINT "The key you pressed
was ";k$
```

When complete Enter in direct mode MODE 0 to ensure the correct mode and then Run the program. If all is correct you should have a message asking you to "Press Any Key" and when you press a key "The key you pressed was" will be displayed together with the key pressed. Now the sub-routine is correct change line 1040 to:

```
1040 RETURN:REM Send the program
flow back to the GOSUB which called
it.
```

You have now written a sub-routine which can be saved for future use. Enter:

```
SAVE "keypress",a
```

Module 2

Enter NEW to erase the memory and type in the next program:

```
2000 REM Reset the Colours and key-
board to standard using the operating
system directly.
2010 CALL &BCO2:REM A machine
code sub-routine which sets all Pen
colours to normal. The &BCO2 is a
hexadecimal number (To base 16)
2020 CALL &BBOO:REM This call sets
the keyboard back to standard
```

The above program resets the colours and the keyboard manager to normal. The two CALLs use the operating system directly. The operating system is a program which controls the use of the computer. When you first switch on, the operating system is copied from the ROM (Read Only Memory) to the RAM (Random Access Memory). The purpose of the operating system is to control the keyboard, tape or disc drives, screen display and printer. Without an operating system the computer would be useless, on the Amstrad CPC the Basic programming language is also incorporated within the operating system. When a Basic keyword is interpreted, the machine code of the operating system is used.

When you write a program one of the first commands will be to make sure the computer is set at a fixed starting point, the keyword RUN clears and resets some of the previous programs setting but not the colour of the Pens or how the function keys are set. The program above sets the pens with the standard inks and the keyboard to normal as if you had just switched on the computer. eg.

Enter in direct mode:

```
INK 1,16
KEY 128,"LIST"+CHR$(13)
PEN 1
PRINT "Press 0 on the numeric pad to list the program"
```

The above lines set Pen 1 to pink and redefines key 128 to List, Pen 1 is then chosen and the statement 'Press 0 on the numeric pad to list the program' is displayed in pink. If you press the 0 you will list the program. You have changed the colour of pen 1 and redefined a function key. Now place a REM in front of each CALL in the program giving a program that does nothing as below.

```
2010 REM CALL &BCO2:REM —
2020 REM CALL &BBOO:REM—
```

If you now run the program, pen 1 will stay pink and you can still list the program by pressing the key pad 0.

Remove the two REMs from the front of the two CALLs within the program and Run the program, this time Pen 1 and key 0 will change back to normal.

Add line 2030 RETURN
and save this program as

```
SAVE "reset",a
```

The main program
Enter NEW to clear the memory and we will write a small program to display the inks available, merging the two previous programs.

```
10 REM Ink Colour demonstration
20 GOSUB 2000:REM Ensure colours and keyboard are standard
30 INK 0,0:MODE 0:LOCATE 6,1:PRINT "COLOURS":REM 16 Colour mode, Paper starts as black
40 FOR colour=1 TO 15:REM fifteen colours chosen as 0 is the Paper colour
50 PEN colour;REM Select Colour
60 LOCATE 7,colour+3:PRINT "Pen ";colour:REM Display Pen in a specific colour
70 NEXT colour
80 KEY 128,CHR$(255):REM Set up 0 on keypad to END the program, produces a character
90 PEN 1:LOCATE 3,23:PRINT "Keypad 0 to END":LOCATE 15,2:PRINT "INK"
100 WHILE k$<>CHR$(255):REM Finish the loop when k$=CHR$(255), produced by keypad 0
110 GOSUB 1000:REM Wait for a keypress
120 limit=limit MOD 12:REM Set limit so it stays within 12
130 p=1:FOR colour=limit+1 TO limit+15
140 INK p,colour:LOCATE 15,p+3:PAPER p:PEN 0:PRINT colour:REM Display the Ink colour as background (paper) with a black pen.
150 p=p+1:NEXT colour:limit=limit+1
160 WEND
170 MODE 1:PRINT "Converting back to standard"
180 FOR pause=1 TO 3000:NEXT pause:REM a short pause
190 GOSUB 2000:REM Reset to normal
200 PAPER 0:PEN 1:END
```

The above program will not work until we merge the sub-routines 1000 and 2000.

Enter:

```
MERGE "keypress"
MERGE "reset"
```

List the program to see the result and Run. A list of Pen colours will be displayed, press a key to change the Inks of the pens and the ink numbers will be displayed. The re-defined key 0 is set up to END the program. NOTE when INKS are changed, and any part of the display on screen using that pen colour is also changed.

SAVE at regular intervals. When developing programs save them to tape or disc often and always save the listing before running the program. If something goes wrong you may have to switch off and load the listing after rebooting (switching back on again).

File Handling
It is necessary within most programs to save to disc or tape some information. This information may be a list of names, a drawing or a position within a game. This ability to save from within a program allows the continuation and manipulation of the data at a later date by re-loading the information. The next program is a simple Name and Telephone number database, the Names and Telephone numbers are saved to Disc or Tape so that next time you use the program the names can be recalled without having to retype them. The routine to save and load back the information can be saved independently as a pair of sub-routines, the variables within the routines will change but not the structure.

OPENIN "filename" Look for a file on disc or tape called "filename" and when found, open a channel to the file. Make ready to receive information into the computer from the file "filename".

OPENOUT "filename" Make a file on disc or tape, call it "filename". Get the disc or tape ready to receive information from the computer.

CLOSEIN The file is complete. Used after the data has been brought in with OPENIN. Completes the file transfer.

CLOSEOUT Used after the date has been sent to disc or tape.

ON x GOSUB a,b,c,d,e IF X=1 then GOSUB a, x=2 GOSUB b or x=3 GOSUB c. etc. If x is NOT equal to any of the GOSUB numbers the command is passed by. Useful for menus.

Simple Database

```
10 REM Name and Telephone number data base
20 DIM name$(50), telephone$(50):REM Reserve space for 51 names and telephones
30 REM Start of control loop
40 WHILE flag-0:REM Loop until the variable flag changes
50 MODE 1:LOCATE 11,1:PRINT "TELEPHONE NUMBERS"
60 RESTORE:REM restore data pointer to the start of the data
70 FOR menu=1 TO 7
80 READ display$:LOCATE 10,4+(menu*2):PRINT menu;"...";display$
90 NEXT
100 k$="":WHILE k$="":k$=INKEY$:WEND:k=VAL(k$):REM Wait for a key press, convert to a numeric value
110 ON k GOSUB 1000,2000,3000,4000,5000,6000,7000:REM If k is not between 1-7 this line is neglected
120 WEND:REM Continue the loop displaying the menu again unless flag<>0
130 CLS:END
1000 REM Create a list
1100 RETURN
2000 REM Add to the list
2100 RETURN
3000 REM Display a list
```

continued on page 30 ▶

```
3100 RETURN
4000 REM Delete an item
4100 RETURN
5000 REM Save a list
5100 RETURN
6000 REM Load a list
6100 RETURN
7000 REM End the database
7010 flag=1:REM flag set to leave the main menu loop
7020 RETURN
8000 DATA "Create a list", "Add to a list", "Display a list", "Delete an item", "Save a list", "Load a list", "End the database"
```

This program as it stands can be called the 'Control Program', a menu is displayed and on the entry of the numbers from 1 to 7 certain sub-routines are used. Apart from number 7 all the sub-routines are empty (Dummy Sub-routines). The program at this stage can be checked for errors and tested by placing small print statements within the sub-routines to check the logic. eg:

```
1010 PRINT "Create"
```

The word create should only be displayed when number 1 is pressed, as the screen is cleared using the MODE 1 command on line 50 it may be necessary to remove the MODE 1 command to see the result. When the control program is working correctly replace the MODE 1 command.

The Sub-routines
The method of program development allows small areas of code to be developed and tested. Add the lines of code below to the control program.

Create a list.

```
1010 CLS:LOCATE 13,1:PRINT "CREATE A LIST":REM Title
1020 LOCATE 6,4:PRINT "Enter the Name and Telephone":LOCATE 8,6:PRINT "Enter END when complete"
1030 Quantity=0:REM Set the number of names and addresses
1040 LOCATE 10,9:PRING "NAME:":LOCATE 5,11:PRINT "TELEPHONE:"
1050 create=0:WHILE create=0:REM Loop while create =0
1060 LOCATE 17,9:PRINT SPACE$(20):LOCATE 17,11:PRING SPACE$(20):REM Remove the last name and telephone
1070 quantity=quantity+1
1080 LOCATE 17,9:INPUT name$(quantity):REM Enter name
1090 IF UPPER$(name$(quantity))<>"END" THEN LOCATE 17,11:INPUT telephone$(quantity):REM Do not ask for telephone if name$(quantity)="END"
1100 IF UPPER$(name$(quantity))="END" OR UPPER$(telephone$(quantity))="END" THEN quantity=quantity-1:create=1:REM Exit loop by setting create to 1 and reduce the quantity by 1 as we do not want this last name
1110 IF quantity=50 THEN create=1:REM Restrict to quantity to 50
1120 WEND:IF quantity>0 THEN exist=1:REM Set up the variable 'exist' to show that names exist
1030 RETURN:REM back to the menu
```

Show that data is held in the memory using the variable exist set up on 1120.

```
95 IF exist=1 THEN LOCATE 13,20:PRINT "DATA IN MEMORY":REM Display on the menu.
```

Display a list

```
3010 IF exist=0 THEN RETURN:REM No point in displaying nothing
3020 GOSUB 3520:REM CLS and title. Note this uses the subroutine at 3500 but starting at later number to avoid the key press routine
3030 FOR display=1 TO quantity
3040 PRINTname$(display)+SPACE$(20-LEN(name$(display)))+telephone$(display):REM display the name and telephone
3050 IF display MOD 18=0 THEN GOSUB 3500:REM When 18 lines have been displayed wait for keypress before displaying the next 18
3060 NEXT display
3070 LOCATE 7,23:PRINT "Press any key for the Menu":CALL &BB18:REM Hold the last few before returning to the menu
3100 RETURN

3500 LOCATE 13,23:PRINT "Press Any Key"
3510 CALL &BB18:REM Wait for keypress
3520 CLS:PRINT TAB(6);"Names and Telephone Numbers"
3530 PRINT:PRINT "NAME";SPC(16);"TELEPHONE":PRINT
3540 RETURN
```

You can now create and display a list of names.

Save and Load files
The information gathered by the program can be seen as a record for each person, the name and telephone number. The way the information is saved is critical as it must be loaded back in the same way. The variable 'quantity' is the amount of records within the computer.

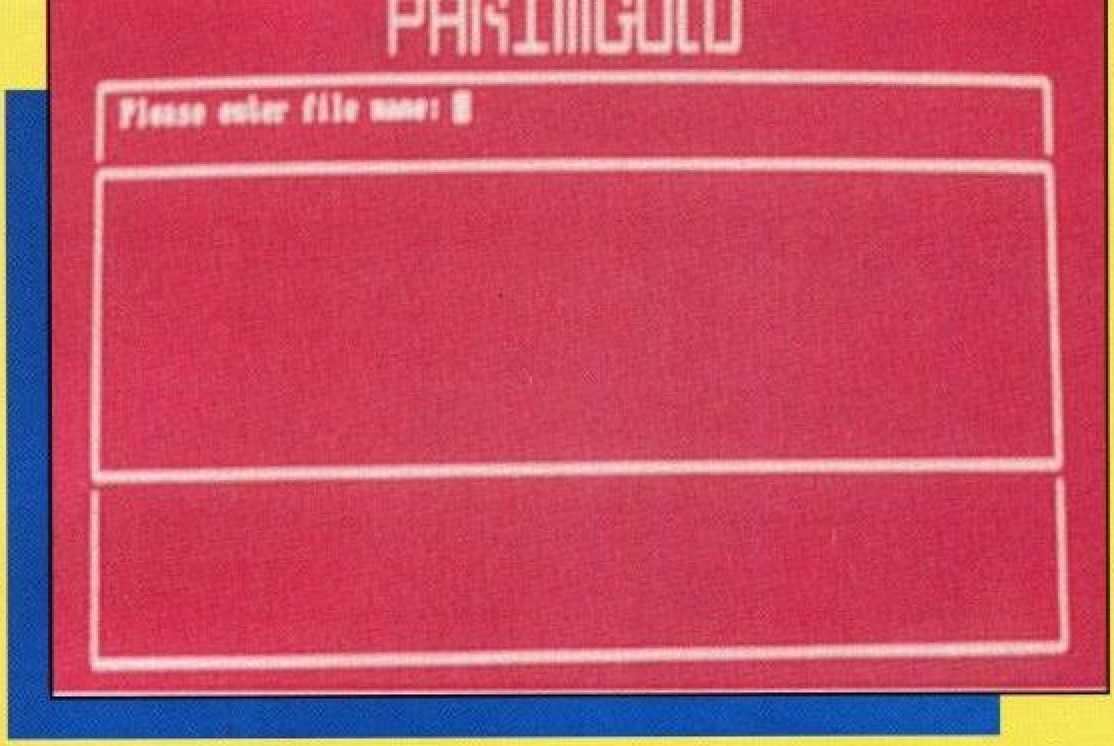
Save the file:

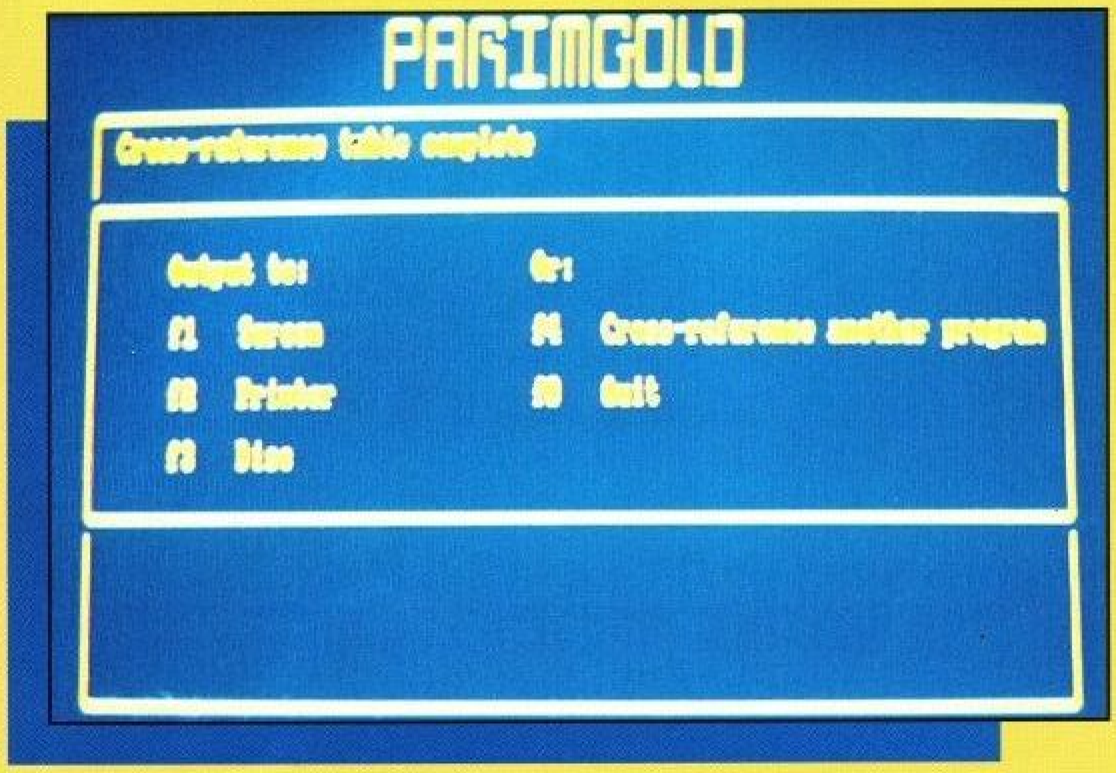
```
5010 IF exist=0 THEN RETURN:REM No information to save
5020 file$="PHONES":REM You could have an INPUT statement here to take in a new filename.
5030 OPENOUT file$:REM Open a channel Out to disc or tape
5040 PRINT #9,quantity:REM Send the out the amount of data, #9 is the disc/tape channel
5050 FOR record=1 TO quantity:REM a loop for each record
5060 PRINT #9,name$(record):PRINT#9, telephone$(record):REM Send out each persons record
5070 NEXT record
5080 CLOSEOUT:REM File transfer complete
5100 RETURN
```

Load the file

```
6010 file$="PHONES"
6020 INPUT #9,quantity:REM Find out how much data. Set quantity to that amount.
6040 FOR record=1 TO quantity:REM quantity found from disc
6050 INPUT #9,name$(record):INPUT #9,telephone$(record):REM bring in a record
6060 NEXT record
6070 CLOSEIN:REM close channel
6080 exist=1:REM When loaded we must have data
6100 RETURN
```

So there we have it for this month a complete name and telephone database when you have completed items 2 'Add to a list' and 4 'Delete an item off the list'. To develop the database further you could add an editing option, Printer and perhaps a bubble sort on the name. Next month I will be looking further into the operating system with (PEEK and POKE) together with designing your own mathematical functions.





SPOT THE REFERENCE

Programming need never be painful again, thanks to a little device from Parimgold.

How many times have you sat back in your chair, eased away the pains in your back and run your latest creation, only to pull out your hair in desperation as the little buggy-poos start appearing before your eyes?

Too many times to mention? Yes, I thought as much. My own programming experience could have told me the answer to that question in a flash.

The trouble is, when you spend painstaking hours working over one of your own creations, or even when you've been struggling over a particularly long type-in, the last thing you want to do when you've finished, is spend another couple of hours de-bugging it.

However, when you type in the old run command and the bugs start cropping up, you suddenly wish you had. Especially if you forgot to save the proggie first, (I know, I've done it as well).

The whole point is, that just one single slip when developing or entering a program, can lead to endless hours of frustration trying to pinpoint that error. It can even ruin a whole project.

Now, however, the answer to every programmer's dreams seems to be at hand, with a seemingly innocuous little program from Wiltshire based Parimgold.

What does it do? Well, quite simply, it takes the hard work out of checking your program for potential bugs, highlighting particular danger areas, at a speed that'll leave you quite green with envy.

As a development tool for BASIC programmers, KWIKREF/X is an absolute essential. It's use is simplicity itself. All you do is make sure you save your program first and foremost. Then, run the Kwikref program and wait for the prompt. Then, just enter in the name of your file and, in a matter of seconds, you'll get a full report on the lowdown of your program which you can print to screen or printer, or save to disc.

This information packed report includes a sequenced list of all the variables within your program, alongside all of the line numbers in which they occur. What could be easier than that, when seeking out a problem?

Lines in which a value is changed are clearly marked for special attention, narrowing down your problem search that little bit more.

On a separate listing, a further table of lines is given in which other lines are referred to, creating, in effect, a total cross-referencing grid from which to work.

For the time it takes to produce all this material, Kwikref has got to be a bargain at just £12.95. Ok, so it won't write your program for you but, as any programmer will certify, anything that can help in debugging is worth its weight in gold.

By printing off the report table to paper, checking down the list against your program should help to iron out most of your problems.

What more needs to be said? Basically, if you like programming, you're going to love Kwikref. Well done Parimgold, for an invaluable piece of software.

DETAILS
Kwikref/X
Parimgold Ltd.,
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Hullavington,
Chippenham,
Wiltshire,
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Tel: 0666 837215.
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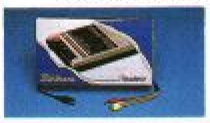
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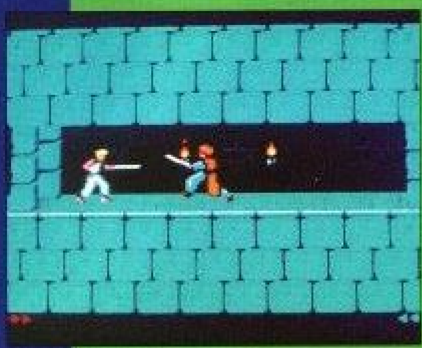
Knock out the chocks, don your goggles and get ready as the ACU team takes off to test out The Famous Five on Treasure Island tries some, oriental adventure in Prince of Persia and smiles for the cameras in TV Showtime

GAMEPLAN



THE FAMOUS FIVE

Derring-do and lashings of ginger beer in this top notch adventure.



PRINCE OF PERSIA

Hack your way through tunnels and towers to rescue the maiden.



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What do points make? Prizes, of course. Time to test your wits.

PLUS

The Winning Team, Builderland, Toyota Celica and more, along with some huge budget hits in your very best value CPC blast arena.

TOP 20

1	(NE)	Magic Land Dizzy	Code Masters
2	(1)	Double Dragon	Mastertronic
3	(NE)	Quattro Firepower	Code Masters
4	(NE)	Gary Lineker's Hot Shots	Kixx
5	(NE)	Continental Circus	Mastertronic
6	(4)	Cavemania	Atlantis
7	(NE)	Spitting Image	Hit Squad
8	(2)	After Burner	Hit Squad
9	(12)	Quattro Adventure	Code Masters
10	(9)	Dizzy Collection	Code Masters
11	(NE)	Forgotten Worlds	Kixx
12	(7)	Teenage Mutant Hero Turtles	Mirrorsoft
13	(5)	Operation Wolf	Hit Squad
14	(NE)	Silkworm	Mastertronic
15	(15)	Super Scrambble Stimulator	Kixx
16	(3)	Real Ghostbusters	Hit Squad
17	(11)	F1 Tornado	Zeppelin
18	(NE)	Technocop	Kixx
19	(10)	Rambo 3	Hit Squad
20	(8)	Defenders Of The Earth	Hitec Software

Last month's position in brackets



Prince Of Persia

A touch of oriental artistry in a classic arcade/adventure yarn.

The scenario is the oldest in the book; rescue beautiful maiden from the clutches of evil tyrant, but what separates this little gem from the pack, is the ingenuity of the gameplay.

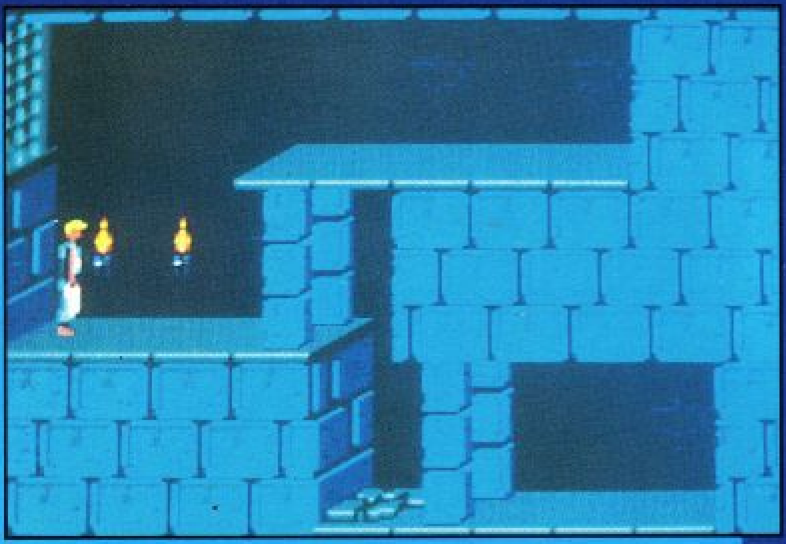
Prince of Persia is one of those rare delights that only comes along once in a long while and, for a time, looked to be the property of the 16-bit domain only.

However, thanks to some excellent conversion work, we CPC freaks can now enjoy this superb offering too, and it doesn't seem to have lost any of the nailbiting tension or playability during the transition.

Using extremely simple joystick control, the only moves you have to master are running, jumping, climbing, dropping and a little swashbuckling swordplay.

If you're a clever joystick waggler, use it. If not, and, in my view at least, if you want just a little more precise control, try using the SHIFT key and the cursors.

Moving on to the game itself, the simple scenario is this: the Grand Vizier Jaffar has seized the Sultan's throne and plans to marry your sweetheart, the Sultan's daughter.





Stripped and thrown into the dungeons of the Sultan's palace, you have just one hour to ascend through the various levels of the palace and rescue the maiden before she has to choose between death, or a life worse than death as the Vizier's wife.

One hour of real-time playing may seem to be more than enough to master a handful of levels of running and swordplay.

However, working your way through the labyrinthine tiers and corridors is not as simple as it sounds and, if you make a wrong turn out of sequence, death comes all too quickly.

There is no limit to the number of lives you lose but remember, the clock is ticking away all the time. Every time you die means precious seconds wasted as your darling languishes in the tower.

As a simple hint, once you've dropped down a level on level one, head west and find your weapon, otherwise there's no way forward.

As you progress, beware of the excellent obstacles in your path. Prince of Persia is all about timing; get your jumps right and use the controls wisely to your advantage at all times. By about level five, the sword-wielding opponents are beginning to get very adept. Be warned, it's no picnic from here on in.

Totally addictive, Prince of Persia features some superb graphics and some mesmerising oriental musical excerpts, giving a real touch of atmosphere to the piece.

In fact, taking into account the sprite movements and clarity of the graphics, you could well be looking at a 16-bit offering.

Well done Broderbund, this is one offering worth every penny of its full-price label.

Jim Johnson

ROUND-UP

NAME	Pince of Persia		
FROM	Broderbund	PRICE	Cassette £9.99 Disc £14.99
96%	94%	99%	GOLD
GRAFFIX	SONIX	PLAYABILITY	VERDICT

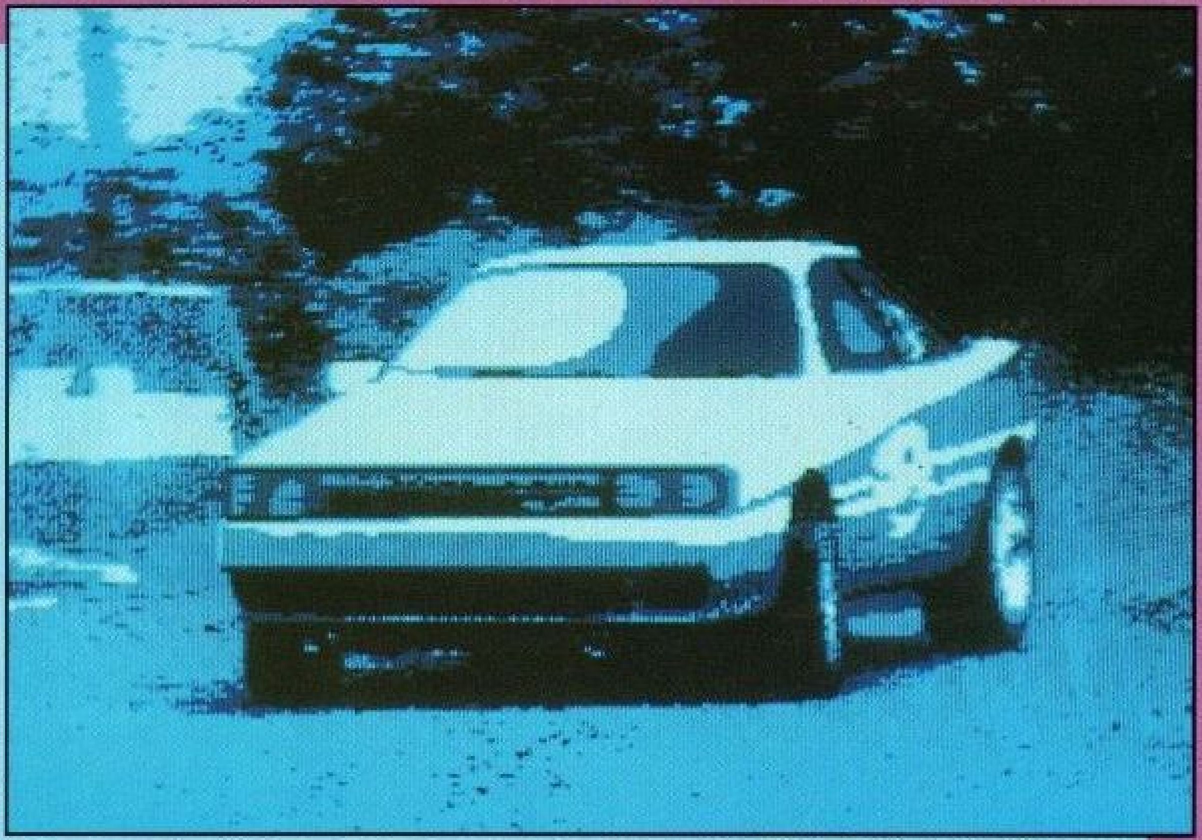
Toyota Celica

Rough and ready rally action in the top of the range Toyota.

Slip the gearstick into first, bring the revs up to a healthy count and wait for the timer before hitting the accelerator on your way to the big time.

As the name of the game suggests, you're in a super-sleek Toyota and the task in question is to take the challenge to the opposition in some very tricky time trials.

If you like a bit of race simulation, then Toyota Celica's going to be right up your street. However, if you don't you might be in for a bit of a disappointment.



Getting control of your car on the straights is a doddle but, once you start hitting the corners, any sign of over-steering can send you careering of the track and into the trees and rocks all around you.



Unfortunately, and unlike the 16-bit version, you don't get the sensitivity option to make steering that little bit easier, so it's a hard struggle from the word go.

Admittedly, the chance to bring in a co-driver will give you much needed information about what's on the road ahead of you, and the in-car screen view is highly realistic but, a little more colour on the screen wouldn't have gone amiss.

Once you've mastered the course, there is a very nifty reverse steering option which will have you all over the place, as the car starts going in the opposite direction to the way you steer, though much of the same happens on the initial course if you're not too adept at the controls.

To be fair, some of the tracks you race over are impressive and, if you like a real challenge, you've come to the right place. Without a co-driver, it really is up to you and your skills to handle the slippery conditions and tight curves.

There is a built-in co-driver to help you out at the more difficult stages but, he's only human and, if you want to be sure of success, it's well worth sorting out your own partner and taking him over every inch of the course to get him acquainted with it.

That way, you're guaranteed to get plenty of warning in advance of any hazards, enabling you to have a fair shot at them in your bid to break the time barriers.

Try changing around the gear and steering options for a bit of variety because, after all, it is the spice of life! When all is said and done, Toyota Celica does feature some smart options and, for the hardened racer, it's guaranteed to provide some stiff action though, without the bright lights, it may be a little too much for the novice, while the soundtrack, though good, may get just a little too much after a while.

John Taylor

ROUND-UP			
NAME	Toyota Celica		
FROM	Gremlin	PRICE	Cassette £10.99 Disc £14.99
68%	65%	64%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

TV Showtime

Get on the ockey and eyes down for a full house. Not this time, though, and don't forget, every second counts!

Now remember, the money you won earlier on – that's safe. And the money you won for charity – that's in the post at the end of the show. All you're gamblin' are the prizes you won on Bully's Star Board. Give 'em some help audience, don't listen to 'em lads. What are you going to do then?

You know what they say, you can't beat a bit of Bully can you?

As you may have guessed, Bullseye is just one of the offerings on this slogan filled collection of top TV quiz shows and, to be fair, it's pretty good stuff too.

Following the lines of the sunday afternoon darts bonanza closely, take on a friend or two and go for points with some tricky questions and easy to master darts throwing.

If darts isn't your cup of tea, try a spot of Bingo with Uncle Bob. Again, if you've seen the TV quiz, then picking up this game will be a doddle. Even some of the questions are a cinch but, be careful, you don't want to be wallied when it comes to the prizes. Looking for something a little more sophisticated perhaps? Then join Mr Burns for some gruelling mental agility, memory recall, logic and general knowledge tests in Krypton Factor. Pit your wits against the computer or a friend and, be sure to do well on the physical ability section, or your brawn won't mean a thing in this brain-teasing collection of questions.

I'll have a P please Bob. Ah, yes, how often have we seen those little giggles as the contestants share the little in-jokes on Blockbusters. I must admit to being hooked to that proggie when it first came out, though I can't be dealing with all that singing and dancing they do at the end nowadays.

Never mind, for a bit of pure blockbusting, try out this neat computer version, which'll have you and a friend chasing across the board on the quest for Gold Runs. It's great entertainment, as are all the others, and a bit of a laugh to boot.

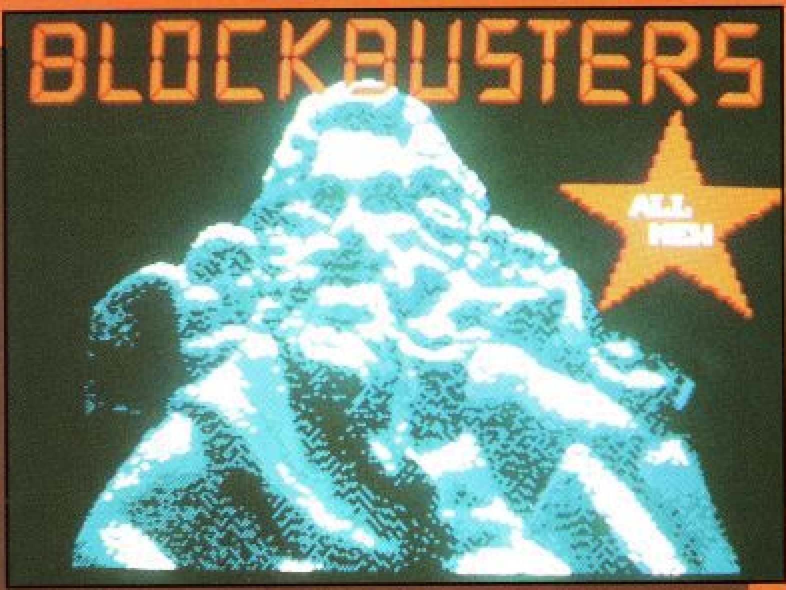
Last, but by no means least, you're going to like this, not a lot, but you'll like it. Yep, Mr Magic himself is here with Every Second Counts, the general knowledge test for time. The more you answer, the more time you collect for the dramatic grand finale. Choose your topics wisely and see if you can't get that holiday of a lifetime. If only!

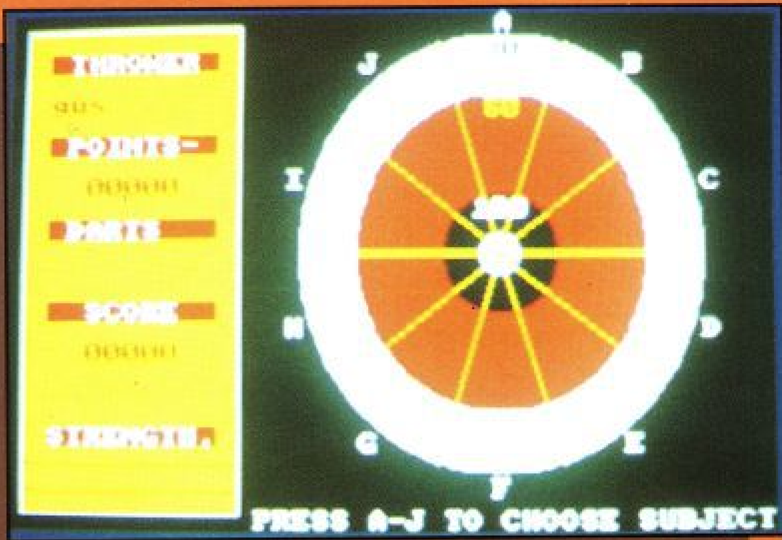
For pure entertainment purposes, TV Showtime is an absolute family must for Christmas or parties, just as long as you haven't got too many bad losers in the family.

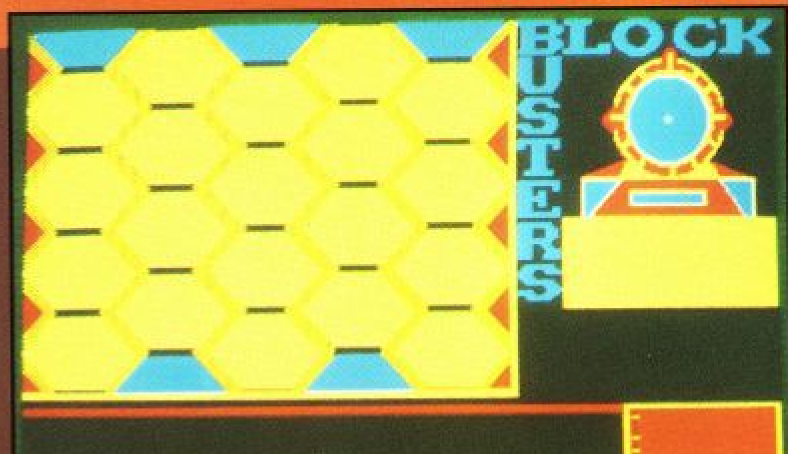
For the price, it's well worth getting hold of because, while it may not win any prizes in the originality stakes, it's great fun throughout and guaranteed to raise a laugh.

If you can see yourself on TV as a quiz contestant, get TV Showtime and start rehearsing now!

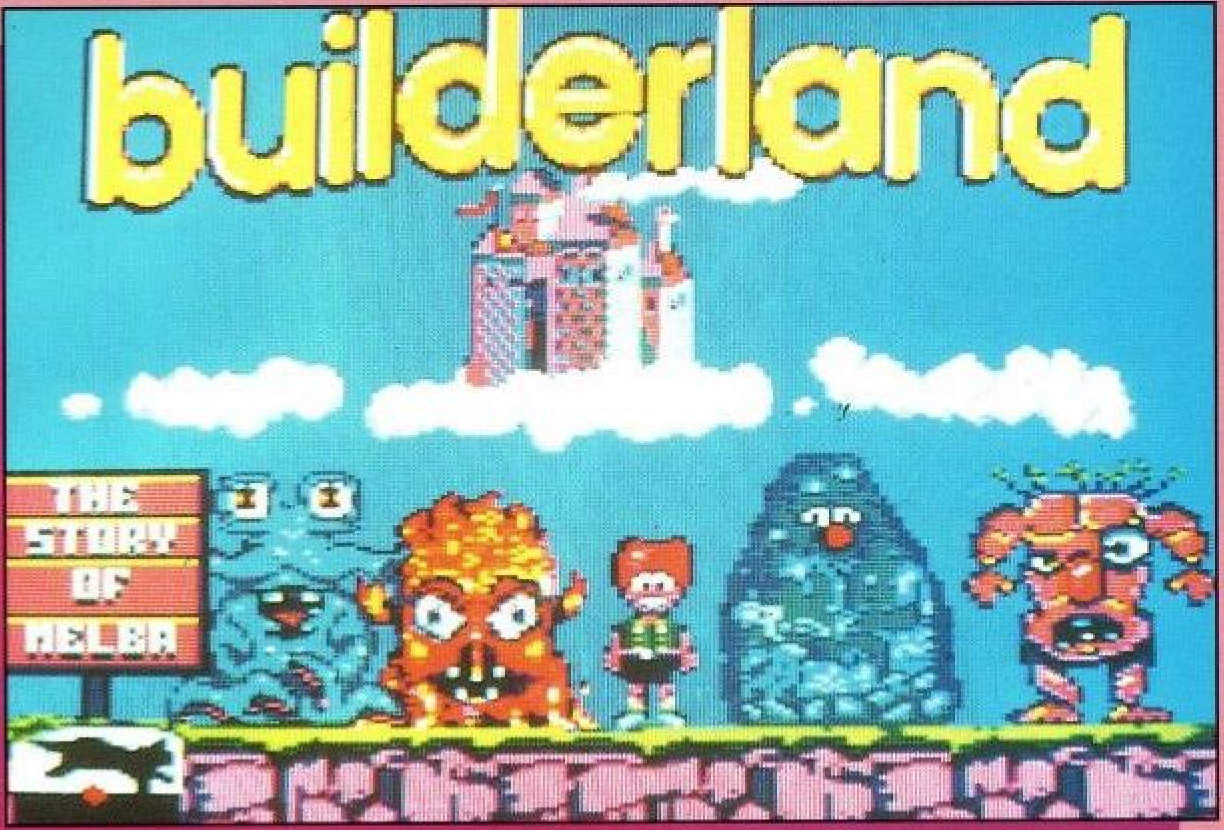
Jim Johnson







ROUND-UP			
NAME	TV Showtime		
FROM	TV Games	PRICE	Cassette £10.99
84%	82%	87%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT



Builderland

A little construction a day, keeps the blues well at bay.

A very neat offering here from across the channel, again, using a very simple but effective scenario. Isn't it funny how the simplest games are usually the best?

As a puzzle based arcade/strategy, the aim of Builderland is to guide your hero across six very different levels, each made up of 20 separate scenarios, with a very ugly monster guarding the end of the level.

Of course, the brute guarding the end of the sixth level is the biggest, baddest brute of them all but, by following the clues along the way, he's not as invincible as he seems.

Now, and here comes the tricky bit, to get your hero across these six levels, he has to overcome some very tricky obstacles in the form of hills and potholes.

Using the joystick, your task is to pick up and move various blocks and pieces of scenery to fill in the holes and make those hills scalable.

At first, this is pretty simple. A ramp moved in front of a hill makes progress easy, while blocks in the holes and golden airblocks in the ravines make your hero very happy indeed.



However, as you proceed, you'll find that the blocks and ramps don't add up to the gaps anymore, and this is where you'll need to put on your thinking cap.

There are various artefacts lying around that may help you out of your predicament, like picks, bombs and potions, but a good piece of advice would be to pause the game for a moment, enabling you to have a look around for hints without your hero getting stuck behind a block and running out of energy.

Using the bonus objects are also a must when the dogs and mosquitoes attack.

At the end of each level, you must construct a little white house in order to meet the monsters. Here, you take control of your hero, using the joystick to grab flames to help destroy the baddie.

If you manage to overcome the monster, be sure to grab his heart – it could come in very handy later on.

All in all, Builderland is one of those games that'll enfuriate you. You certainly won't succeed at the first, or second, attempt, but you're going to want to keep on going until you do.

With some pretty exceptional graphics, Builderland is a very cleverly thought out game, even though, at times, you may get a little frustrated waiting for your hero to catch up with your construction work.

However, in terms of entertainment value, it shouldn't be missed.

Chris Knight



ROUND-UP			
NAME	Builderland		
FROM	Loriciel	PRICE	Cassette £9.99 Disc £14.99
89%	87%	90%	TNT
GRAFFIX	SONIX	PLAYABILITY	VERDICT

Pack up your picnic hamper, make sure you've got more than enough Ginger Beer to go around, and set off for a rip-roaring adventure with some excellent graphics to boot.

Although Five on a Treasure Island is based on the original Enid Blyton novel of the same name, you don't need to have read the book to play the game. However, if you have, you may find a few clues to help you on your way to solving the mystery.

Don't think that reading the book is going to offer you the solution on a plate, though, as plenty of new twists and turns have been added to the plot of the game to keep you guessing right til the end.

In true Blyton style, there's plenty of skullduggery afoot and, only by using the qualities of each member of the intrepid team, can you unearth all of the clues you will need to succeed.

With this in mind, one of the smartest aspects of the game, is the ability to swap characters at will, allowing the Five to split up as you control individual members alternately.

For example, Julian's strength could well come in handy for lifting weights Anne couldn't even come close to moving, while George is undoubtedly the best swimmer.

This almost multi-player aspect of the game means you can easily take on the challenge with a group of friends, with each player assuming the role of a different character and taking over every few turns.

As with all good adventures, you're going to have to examine anything and everything. There are numerous characters throughout to interact with, many of whom will have valuable clues, or know vital information, needed in your quest.

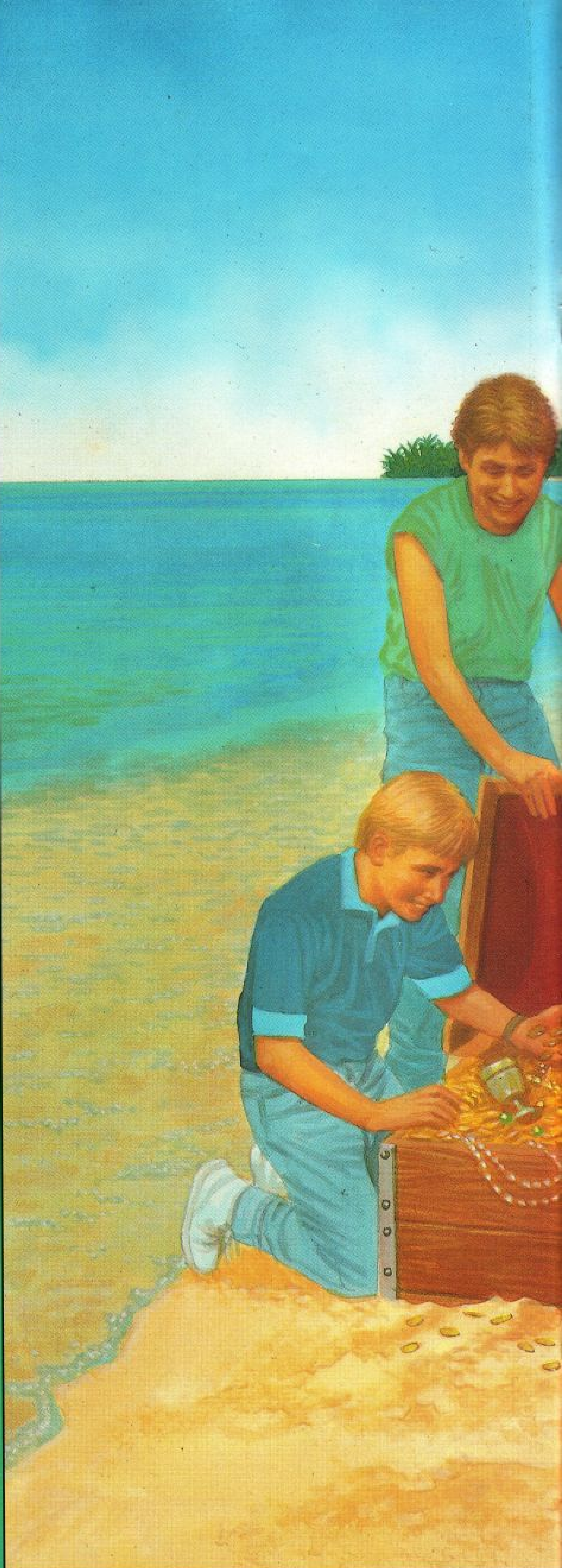
Be careful though, some of them may not be too willing to help unless you do something for them first. Don't just dismiss them out of turn, see what they want first or you'll miss out.

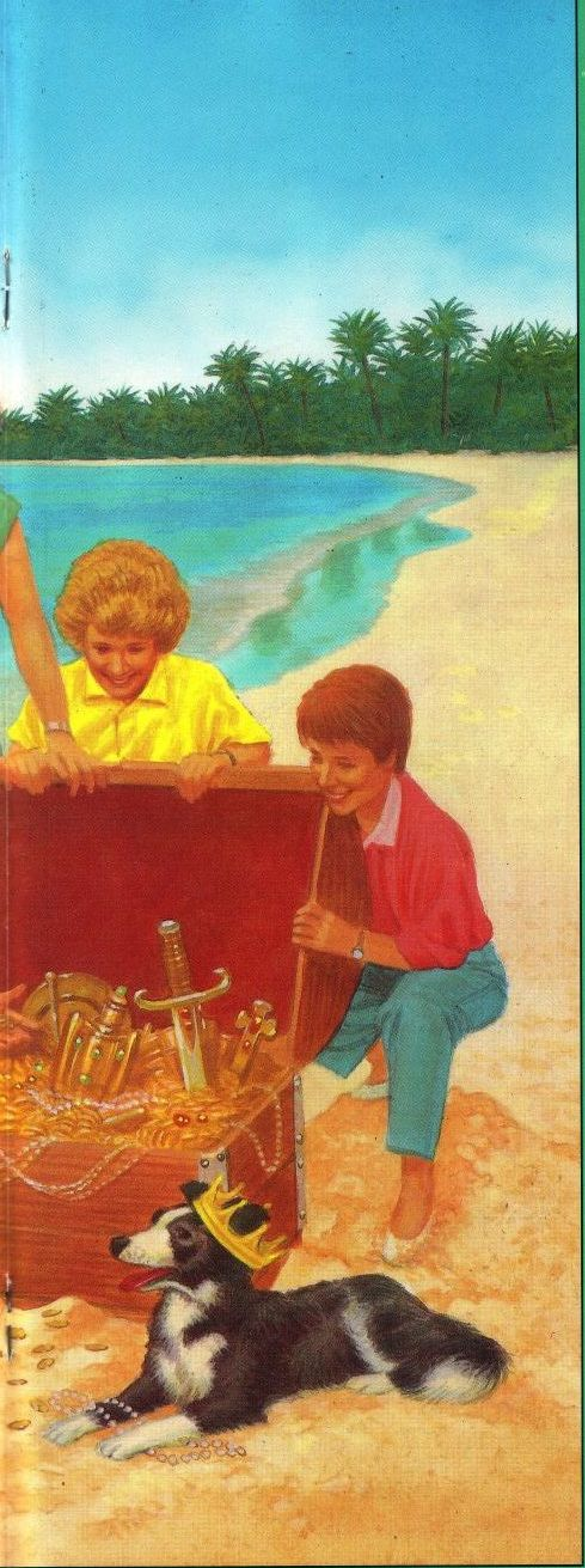
Again, as all seasoned adventurers will know, if you want to succeed, make sure

The Famous Five-I

Can you solve the mystery of Treasure Island?







you have a pen and paper handy, for map-making purposes. There are also many messages that appear only once so, if you don't want to forget them, note them down at once.

As for solving the mystery? Well, that's all down to you. You'll find no clues here, just be sure to investigate everything you can and pick up any objects you find which might come in handy later.

The most impressive thing about Five on a Treasure Island is the independence of the characters. Using the Worldscape technique, most of the characters are flexible enough to do just about anything you ask them to. Mind you, don't bother too much about asking Timmy the Dog to perform complicated tasks, he's more interested in the local flora to be of much assistance.

Entering commands at the bottom of the split screen system is incredibly easy, as the program is set to understand most phrases of everyday English. Just as long as you remember to include a verb and a noun, or just a verb where necessary, you can phrase your commands as you like.

You can even enter multiple commands to a maximum of 62 characters, or sixteen words which, when you consider that you can condense most words down to the first four letters, allows for plenty of action to take place on each turn. Just remember not to go too fast, or you may miss something.

From the very moment you step off the train at Kirrin, you're in for an excellent time, taking you all over Kirrin Island, down a well, into the dungeons and on the chase of some particularly nasty villains.

Each scene is superbly illustrated and described, allowing you to glean as much information from it as you can. You're going to make



mistakes on the way, of course, but what's a good adventure without trial and error.

Speaking of which, it's about time the old adventure genre got a good airing on the CPC scene again, in the form of full-blown, full-price games.

Not only will it make the Dungeon Master and his fans very happy indeed, but it might also show other gamesters that there is fun to be had without a joystick.

Well done Enigma. Five on a Treasure Island should be a corking success when it hits the streets, as well as on indication of the CPCs potential as an adventure machine as well as a blast zone.

If you're a seasoned adventurer, or feel like giving it a try for the first time, Five on a Treasure Island has the ideal balance to appeal to all. Try it, I think you'll like it.

John Taylor

ROUND-UP			
NAME	Five on a Treasure Island		
FROM	Enigma Variations	PRICE	Disc £14.99 Cassette £10.99
89%	N/A	90%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

The Winning Team

More tastes catered for than Golden Wonder in this cracking combination.



Domark has done it again with this one. Another superb collection of classic Tengen coin-op conversions at a real value-for-money price.

From zany humour, through puzzling, to action packed shooty, it's all here in one superb compilation, kicking off with the frenetic cartoon action of Escape from the Planet of the Robot Monsters. You know the form, or you should anyway; the robot monsters have taken a posse of females hostage on their space station and, it's up to you and a friend to get blasting in outer space in a desperate effort to get them back.

It's fast, it's funny and it's an excellent blast in its own right. 'Nuff said.

Next up on the agenda is another hatful of comic action in the fast and furious APB. As officer BOB, cleaning up the streets of louts and bums has never been better, even though there are some hardened criminals out there who need to be dealt with.



The car chases are superb, as are the graphics throughout, while the extra weapons on offer make the work of the lawman an absolute joy. The humour abounds but doesn't effect the excellent gameplay. If you haven't tried this one yet, be sure you do in the near future, it's a winner.

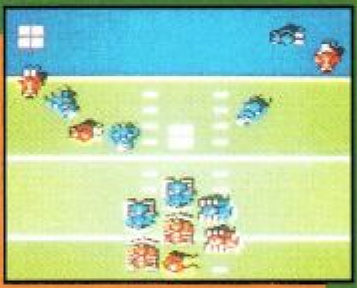
Lovers of the good old brain-teasers are well and truly catered for on this compilation with the award-winning Klax.

The game is simplicity itself, just collect the coloured tiles as they fall down the tray to make lines of tiles of the same colour, horizontally, vertically or diagonally.

It's simplicity itself to start with, but becomes monstrously difficult as you proceed, as well as being totally addictive. An absolute must for puzzle freaks.

For some hardened battle action, you won't get much better than Vindicators. Using some stunning graphics and special effects, your job is to get running against the aliens in your supercharged battle tank.

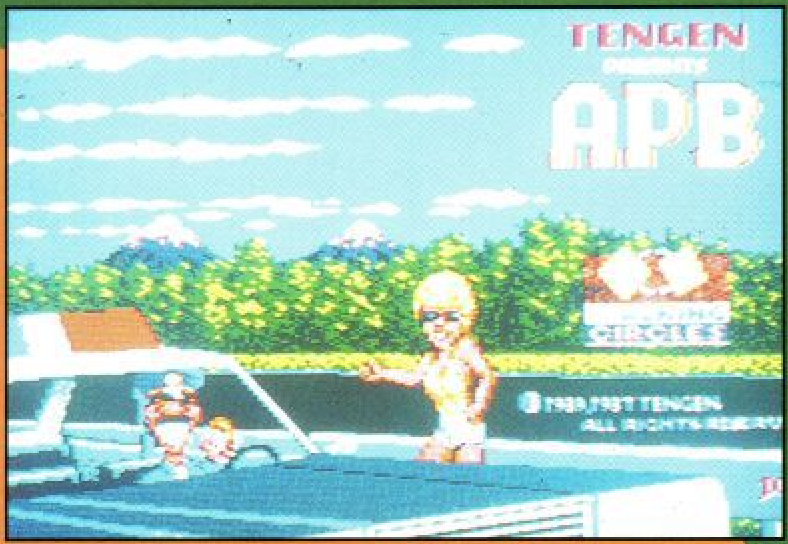
Keep an eye on your reserves as you fight your way through the alien hordes and make sure you master the controls to ensure the future of Mankind in this excellent shoot-em-up.

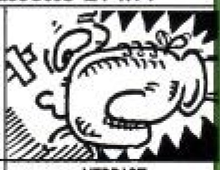


Last up is the highly acclaimed explosive future sport of Cyberball. Lead your cybernetic robots out onto the field and do your worst against some devilish opponents. Use the exploding ball to decimate the opposition's defence but, just be sure you're nowhere near it when it goes up!

Superb graphics and excellent gameplay make Cyberball a real must in the strategy stakes and an excellent feature of this very, very smart compilation.

John Taylor



ROUND-UP			
NAME	The Winning Team		
FROM	Domark	PRICE	Disc £19.99 Cassette £14.99
89%	88%	90%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

Skull and Crossbones

Ahoy, Me Hearties! All aboard for swashbuckling swordplay and adventure on the high seas.



If it's booty ye be after, then get a load of this superb offering from Domark, a one or two player gem that'll set you against the toughest of henchmen in your quest to get back your ill-gotten gains.

The evil sorcerer has taken away your treasure and, as honest, god-faring citizens, your natural reaction is to go out on a frenzied blood-rush to get it back.

Unfortunately, the way to your treasure is well and truly guarded and you'll need to master the joystick moves fairly quickly if you want to get a sniff at your gold.

Starting off as either One Eye or Red Jack, your first mission is to fight your way off of the pirate ship and over the gangplank. There are only a couple of fairly expendable guards here, so progress isn't too difficult.

Once you start moving on, however, things get decidedly sticky, and you'll need to watch yourself at all times as the arrows start hailing down on you.

As a one player game, Skull and Crossbones is exceptional stuff, taking you through caverns, castles and islands on your way to the sorcerer's lair but, as a two player game, it's even more fun, allowing you to take it in turns to have a go at each level.

If you thought the henchmen were bad enough, wait til you have to fight it out amongst yourselves for the booty at the end of each level. Guaranteed needle there.

As you progress, there are plenty of bonuses to be had; food and drink to sustain you, and treasure to lift your spirits. Look out for the skull and crossbone symbols to locate hidden treasure which will increase your strength and make your quest easier to accomplish, using some hard earned special combat moves. Work them out for yourself and watch your blade flash through the air.

Skull and Crossbones is a well thought out arcade cut-'em-up, with some superb graphics and very atmospheric sound effects.

There are even a few lusty wenches to be rescued for good measure so, hoist the Jolly Roger and move in for some particularly nasty swordplay.

Getting used to this swordplay may take a little time, but you can bluff your way through the first couple of levels with some maniacal joystick waggling so that, by the time you come up against the real toughies, you may well have gotten used to the moves. You'll need to.

There are no puzzles in this game, just out and out action from the start and it's excellent fun too.

Jim Johnson





ROUND-UP			
NAME	Skull and Crossbones		
FROM	Domark	PRICE	Disc £14.99 Cassette £9.99
86%	87%	88%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

Budget Basement

Pocket money power grows bigger and better by the month, as this selection of top rate offerings will testify.



MAGICLAND DIZZY

Yes, the all-conquering egg-shaped hero is back in yet another mega-adventure with all his friends and relatives.

However, his Yolkfolk aren't too happy at the moment, due to Dizzy's part in destroying the evil wizard Zaks.

Having made all the necessary precautions for a premature demise, Zaks has transported all Dizzy's friends into a weird fairy-tale world, each into a very embarrassing situation, which Dizzy must save them from.

For example, Daisy has been enlarged and trapped in Zaks oubliette, (very nasty), Dora has been turned into a frog and Dozy, well, what else would Dozy be doing but sleeping. This time however, he is in a deep magical sleep from which he might never return, unless Dizzy can do anything about it, that is.

Along the way, and in true Dizzy style, there are hordes of puzzles to be solved and a host of items to be picked up, each in a special order, to allow you to progress further into the game.

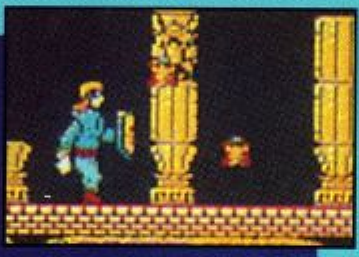
Working your way through each successively weird scenario, Dizzy must find the enchanted sword Excalibur and brave the wicked witch's island in his quest to save his friends, before going on to finish off Zaks once and for all in the grand finale.

Featuring the stunning graphics and effects we've come to expect from the Oliver Twins, Magicland Dizzy is an absolute must, whether you're a Dizzy collector or not.



GREAT GURIANOS

Join in the epic adventure as the great Gurianos undertakes his most intrepid mission to date, taking on some of the mightiest warriors of the known, and unknown, world.



Using some excellent graphics against some super-smooth scrolling backdrops, your simple task is to get out there with your sword unslung and take on the world.

As you get engrossed in the swashbuckling sword-play, keep your eyes peeled for flying bonusses at all times. Hit four of the flying swords and you'll get a super sword which, when pressing sword up, middle and down together, will give you total invincibility against one of the ferocious warriors.



Watch out for the flying ball as well, this will replenish your titanium armour, while the flying shield will strengthen your carbon-chromo shield against attack.

As you progress, and the opponents get increasingly tougher to take out, remember your ultimate weapon, the protector shield. By pressing sword up, middle and down together, the protector shield will take care of any flying objects, allowing you to concentrate on the baddie at hand.

However, use these sparingly, as you only get one shield per life and your future existence depends on shrewd use of your wits.

Taking in some extremely diverse settings, Great Gurianos is an adventure on an epic scale, with some neat sound effects taking you right through to the final confrontation. Get that far and you'll know the struggle has all been worth it. If you don't, you're going to want to try again and again until you do. Good luck, now you're on your own.

QUATTRO FIREPOWER

Yet another in the long line of blockbusting Quattro compilations from Code Masters, and this one looks set to be every inch the hit that its predecessors were.

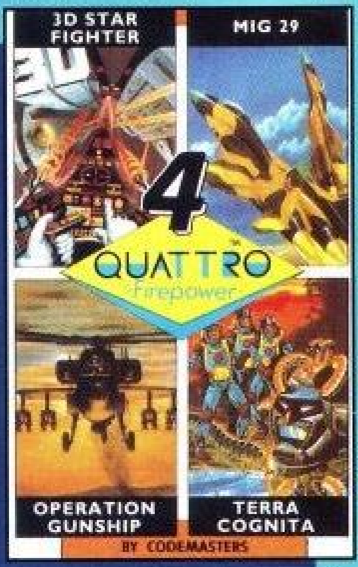
Starting off with some explosive shooty material, your first quest is to destory the enemy battlestar that threatens all known life forms in 3D Star Fighter.

Taking on the might of the alien attack force with just your on-board computer, Blinky, to help you, the world rests on your shoulders and on the speed of your trigger finger in this excellently devised space shooty. Smart graphics and action-a-plenty.

Next up is a spot of realistic jet fighter simulation in Mig 29. Taking up the latest Soviet aerial battleship is no mean feat but, once you've mastered the take-off, landing and in-flight controls, it's off to some frighteningly good battle scenarios from, air-to-air, through air-to-sea, to air-to-ground attacks. Pay attention to your weaponry and fuel reserves and take the batte to the enemy in this fast moving battle simulator.

Operation Gunship sees you in control of an awesome

array of firepower as you brave all to rescue your comrades from the jaws of the enemy. This one really is about speed of trigger finger, as you get set to blast everything that gets in your sights. An absolute must for shooty fans, with some superb graphics and atmospheric sound effects. Last up is the futuristic yarn Terra Cognita. Featuring super fast scrolling, this arcade blast will have you falling out of your chair with tension as you battle to save the planet Krion from the evil warrior robot. Over 100 different screens and super -smooth scrolling make this an





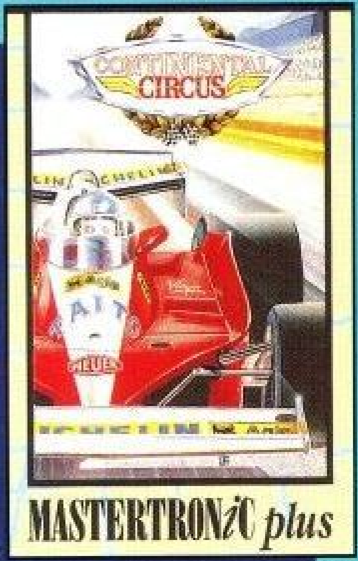
incredibly playable blast, rounding off an incredible collection of non-stop action that no serious joystick waggler should be without. Well done again, Code Masters.

CONTINENTAL CIRCUS

Moving on to a totally different scene, experience nailbiting tension of a different kind in the totally brilliant Continental Circus.

The aim of the game is to prove to the big boys that you're good enough to be driving a Formula One race machine. To do this, you've



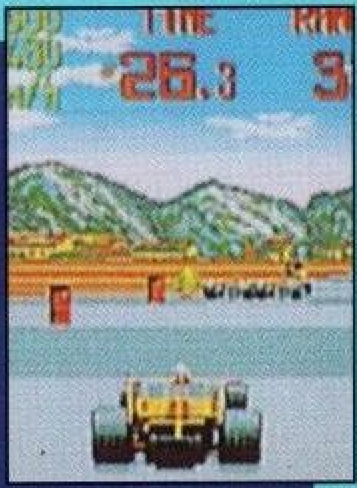


got to complete eight gruelling tests of character, over eight different circuits, meeting your time requirements on each one to succeed.

From the word go, the clock is against you. Over the first track, your goal may not be too hard to achieve, but it gets progressively harder as you go on.

Each time you fail, one of your four chances disappears in smoke, making you even more desperate to make the grade the next time around.

Get used to the controls of the car and simply go hell for leather against the clock. Avoid collisons at all time, as they may cost you a life as well as valuable seconds. Getting into the pits helps, as



the clock stops until you reemerge onto the track but, try and soldier on without a pit stop and you'll find things getting very sticky inside your machine.

To make matters even worse, changing weather conditions can dramatically affect your car's roadholding. You have been warned.

Featuring some marvellous grahics, Continental Circus is a winner from the very start but, to know exactly what I'm on about, you've got to try it for yourself. You will not be disappointed.

JOCKY WILSON'S DARTS

Step up to the ockey and be prepared for the ultimate darts experience ever captured on a microcomputer cassette.

With this little beauty, not only do you get a go at the conventional 501 knockout, but you also get a go at some of the more obscure darts games played in pubs and clubs around the country.

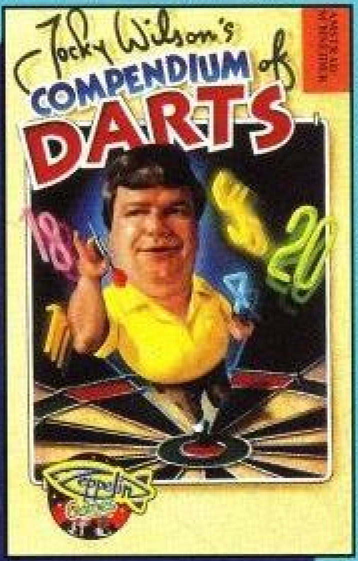
How about football on the dart board, for example? This one's all about hitting doubles. First off, though, you've got to hit a bullseye. After that, it's the first player to score ten doubles.

In dart bowls, you or a friend throws the 'jack' at the board. Then all you have to do, is throw your three darts as close to the jack as you can, scoring similarly to bowls for the nearest darts.

Scram sees one player trying to block out sectors on the board, while the other player tries desperately to score as many points as he can from the remaining sectors.

Guaranteed to start a few arguments that one.

Ten dart century is exactly what the name implies. Using ten darts each, the aim is to score 100 exactly, the player who gets closest being





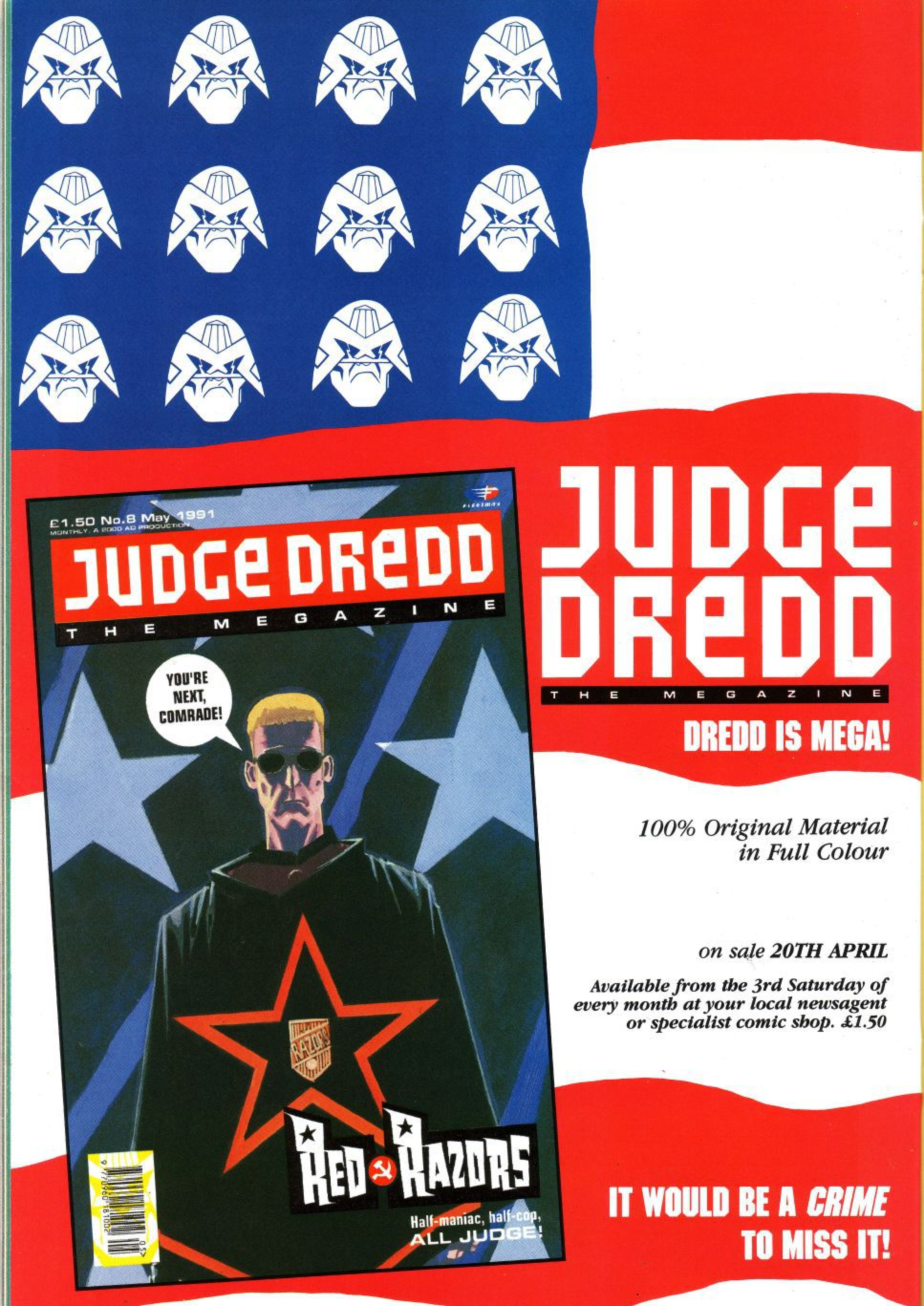
the winner.

Many of you will probably know Shanghai already, as the computer selects a number to be the target. A triple of that number scores 3 points, a double, 2, and a single, 1 point.

Add all of these games to the traditional 501 and you've got an excellent all-round selection of fun. Setting the difficulty level to suit your expertise, means the games can be as challenging as you like, while the two-player option allows for hours of fun and needle between you and a friend.

For all-round entertainment, Jocky Wilson's Compendium of Darts is well worth getting hold of. The graphics are neat and, once you've mastered the dart throwing, the options are extremely diverse. You can enter into pub, county or international competitions if you like. Good darts, Zeppelin.

Magicland Dizzy	Code Masters	£2.99	90%
Great Gurianos	Encore	£2.99	87%
Quattro Firepower	Code Masters	£2.99	89%
Continental Circus	Mastertronic	£2.99	94%
Jocky Wilson's Darts	Zeppelin	£3.99	96%


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IT WOULD BE A CRIME
TO MISS IT!

Here it is at last: your chance to say what you think about ACU. Just fill in all the questions below, and your entry will be put into a special ACU prize draw, with an assortment of up to the minute games and serious software goodies going to the first entry pulled out of the sack. So get answering and send off your questionnaire now.

About You

1. If you have a company how many people does it employ

☐ Under 10 ☐ 51-100
☐ 11-25 ☐ 101-500
☐ 26-50 ☐ over 500

2. What is your:

Age ______ Sex ______ Occupation __________

3. What is your annual income (if applicable)?

☐ At School/College
☐ Less than £5,000 ☐ £20,000-£24,999
☐ £5,000-£9,999 ☐ £25,000-£29,999
☐ £10,000-£14,999 ☐ £30,000-£40,000
☐ £15,000-£19,999 ☐ More than £40,000

4. What is your name and address? (This information will be used to notify you of any prize you may have won)

____
____
____

5. In which TV region do you live?

☐ Grampian ☐ STV ☐ Border ☐ Granada
☐ Yorkshire ☐ Tyne Tees ☐ Central ☐ Anglia
☐ TV South ☐ Thames ☐ TSW ☐ HTV (West)
☐ Ulster ☐ HTV (Wales) ☐ Any other

About your computer

6. What kind(s) of the following computer(s) do you own?

N.B. If you OWN more than one computer, please indicate which you bought first (1), second (2), etc.

☐ CPC 464 ☐ CPC 664
☐ CPC 6128 ☐ 464+
☐ 6128+ ☐ GX4000 console
☐ Spectrum ☐ Commodore
☐ Atari ☐ Amiga
☐ Any other ______________

7. What kind(s) of the following computer(s) do you have access to at work/ school?

N.B. If you have access to more than one, please indicate which you use most (1), then the next (2), and so on.

☐ 464 ☐ 6128
☐ CPC+ ☐ Spectrum
☐ Commodore ☐ Atari
☐ Amiga ☐ PC
☐ PCW ☐ Mac
☐ Any other ______________

8. The following is a list of features which could be important when buying a computer. Please indicate how *important* each is by ticking the appropriate box for each feature.

	Very	Quite	Fairly	Not at all
Price	☐	☐	☐	☐
Speed	☐	☐	☐	☐
Backup and Service	☐	☐	☐	☐
Availability	☐	☐	☐	☐
Personal recommendation	☐	☐	☐	☐
Magazine reviews	☐	☐	☐	☐
Your own computer experience?	☐	☐	☐	☐

☐ Any other ______________

9. For how long have you owned your CPC?

☐ Less than 6 months ☐ 6 months - 1 year
☐ 1 year - 2 years ☐ More than 2 years

10. Do you use a printer?

☐ Yes ☐ No

If you answer yes, is it a:

☐ 9-pinl (model __________)
☐ 24-pin (model __________)
☐ Ink jet (model __________)
☐ Laser printer (model __________)

11. Do you use a modem?

☐ Yes ☐ No

12. Which computer language do you use to write programs on your computer?

☐ Basic ☐ Machine Code ☐ Any other

13. Do you ever use public domain software?

☐ Never ☐ Seldom ☐ Often

Your computing activities

14. How do you usually buy your computer products?

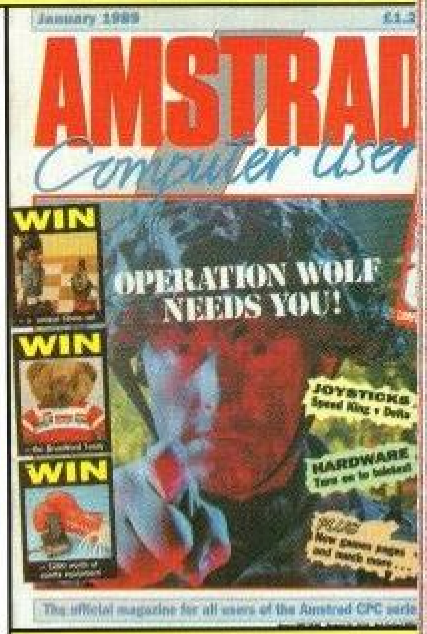
	Software	Hardware
By mail order	☐	☐
From computer shops	☐	☐
From high street stores	☐	☐

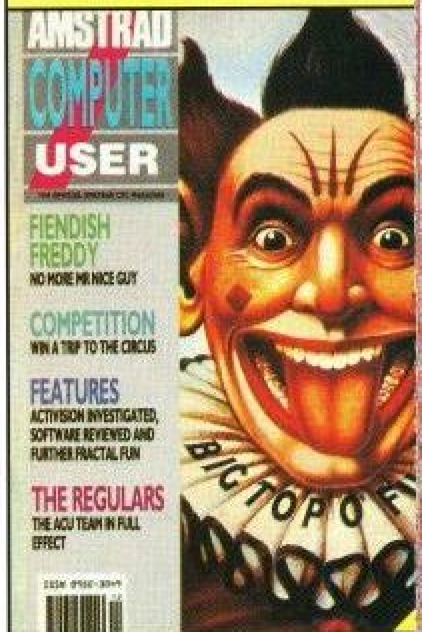
15. For each of the following applications, please indicate whether you own or otherwise have access to a particular program?

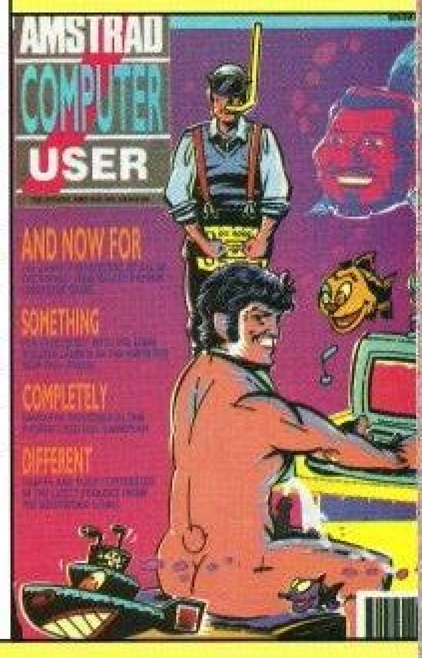
	Own	Have access to	Program(s)used (if applicable)
Communications	☐	☐	________
Word processing	☐	☐	________
Database	☐	☐	________
Accounts	☐	☐	________
DTP	☐	☐	________
CAD	☐	☐	________
Graphics	☐	☐	________
Education	☐	☐	________
Spreadsheet	☐	☐	________
Leisure (games)	☐	☐	________
Computer languages	☐	☐	________
Integrated software	☐	☐	________

16. In terms of CPC computing, how would you rate your knowledge?

☐ Expert ☐ Quite good ☐ Average
☐ Not Good ☐ Newcomer









17. Where do you do most of your computing:

☐ At work ☐ At home ☐ At school

18. Over the next 12 months, roughly how much do you think you will spend on:

	Software	Hardware
Nothing	☐	☐
Under £100	☐	☐
£500-£1000	☐	☐
Over £1000	☐	☐

About ACU

19. Do you obtain ACU from:

A newsagent 'off the shelf' ☐
A newsagent on a monthly order ☐
A subscription from the magazine ☐
A friend ☐

20. Do you often see ACU on your newsagent's stands?

☐ Yes ☐ No

21. Do you ever experience any difficulty obtaining ACU?

☐ Yes ☐ No

22. For how long have you been reading ACU?

☐ 0-3 months ☐ 3-6 months ☐ 6-9 months
☐ 9-12 months ☐ 12-18 months ☐ +18 months

23. In general, how much do you like the following kinds of articles when they appear in ACU?

	A lot	Quite a lot	OK	Not much	Not at all
Software reviews	☐	☐	☐	☐	☐
Hardware reviews	☐	☐	☐	☐	☐
Printer reviews	☐	☐	☐	☐	☐
Book reviews	☐	☐	☐	☐	☐
Games reviews	☐	☐	☐	☐	☐
Communications	☐	☐	☐	☐	☐
Features on applications	☐	☐	☐	☐	☐
News pages	☐	☐	☐	☐	☐
Technical pages	☐	☐	☐	☐	☐
Programing tutorials.	☐	☐	☐	☐	☐
Programing hints and tips	☐	☐	☐	☐	☐
Program listings	☐	☐	☐	☐	☐
Editorial	☐	☐	☐	☐	☐



24. Is there any kind of article you feel we don't cover frequently enough (if at all)?

____

____

____

25. Do you regularly keep back issues of ACU?

☐ Yes ☐ No

If you answered YES, how often do you refer back to issues of the magazine?

At least once a week ☐
Once every 2-3 months ☐ Less frequently ☐
About once a month ☐ never ☐

26. For how long would you say you spend reading your copy of ACU?

☐ Less than ½ hour ☐ ½ hour - 1 hour
☐ 1-1½ hours ☐ 1½ hour - 2 hours
☐ Over 2 hours

27. Does anyone else read your copy of ACU?

☐ No, only myself ☐ 3-4 others
☐ 1-2 others ☐ More than 4 others

28. Why do you read ACU? Please indicate the *importance* of each of the following:

	Very	Quite	Fairly	Not at all
Because of its price	☐	☐	☐	☐
To read the adverts	☐	☐	☐	☐
To find out about new products	☐	☐	☐	☐
To use as a guide for purchase	☐	☐	☐	☐
To learn more about CPCs	☐	☐	☐	☐
To learn more about programming	☐	☐	☐	☐
It has bright covers	☐	☐	☐	☐
To learn more about operating systems	☐	☐	☐	☐
To learn more about communications	☐	☐	☐	☐
To find out more about Amstrad	☐	☐	☐	☐
Because it's a good read	☐	☐	☐	☐

29. Which of the following would you most like to see featured with ACU:

	Def no	Prob no	Don't mind	Prob yes	Def yes
Cover mounted gifts	☐	☐	☐	☐	☐
Additional supplements	☐	☐	☐	☐	☐
Competitions	☐	☐	☐	☐	☐
Money saving offers	☐	☐	☐	☐	☐
Cover mounted disk	☐	☐	☐	☐	☐

30. In general, do you find the content of ACU:

Well balanced ☐
Often dwells too much in particular areas ☐
(which ones ____________________)

31. In general, do you find the articles in ACU:

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David Dorn completes his examination of networking on the CPC and enjoys the experience.

Casting the Net Wider

Thus far we've seen how the physical construction of the CPC network is sorted out, and installed the soft/hardware. Thankfully, that's the major part of the process out of the way – the rest is much like using any other application.

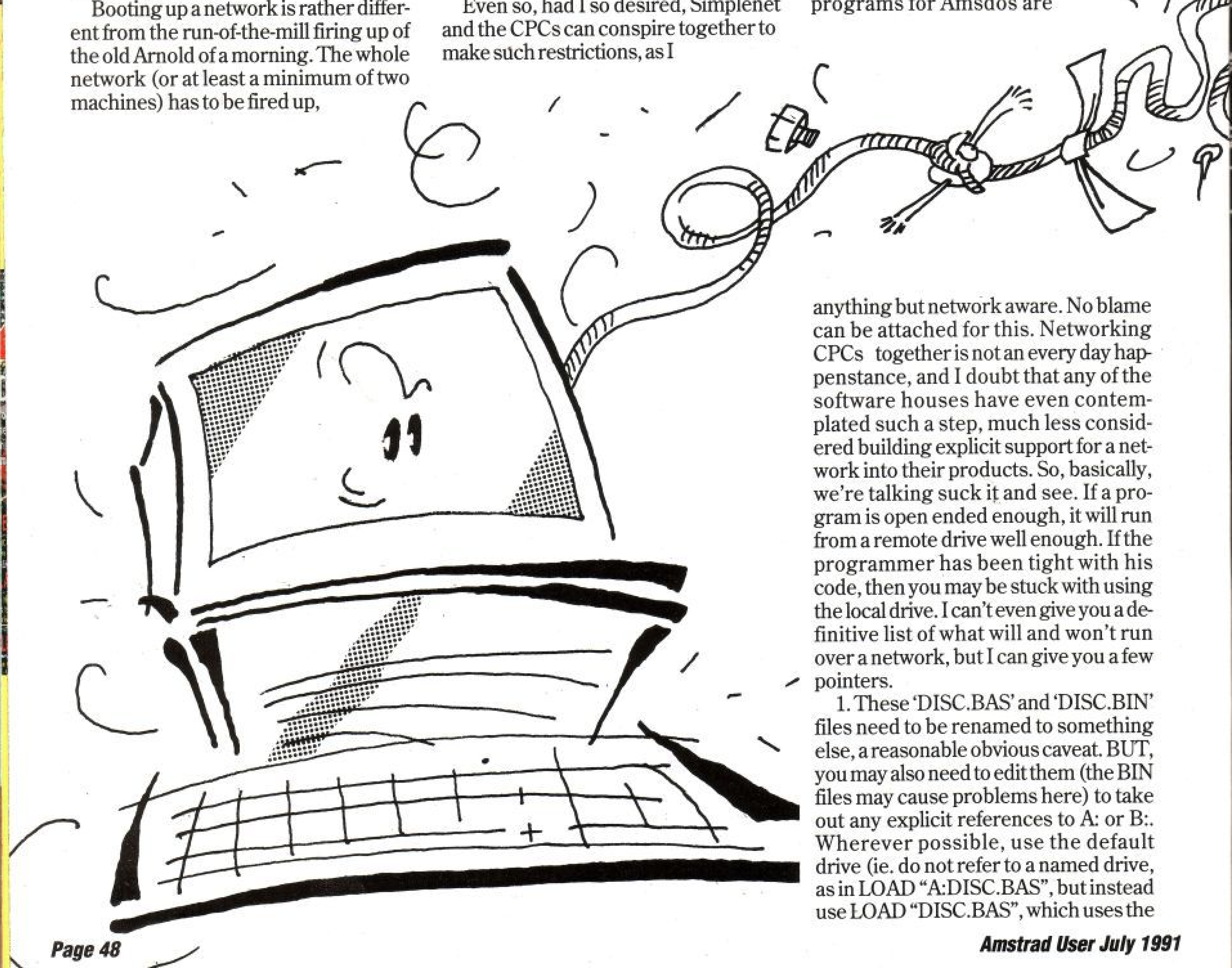
Booting up a network is rather different from the run-of-the-mill firing up of the old Arnold of a morning. The whole network (or at least a minimum of two machines) has to be fired up, and in a certain order. Since I'd elected to use my PC as a file server, it had to be got up and running first – there's little point in having a file server that's asleep, since that's where, if the network is being used correctly, the vast majority of the working files will reside.

That done, the CPCs can be powered up and the network established. Bingo! What you now have is access to a hard drive (and, I might add, one that is considerably cheaper to buy than the dedicated unit I reviewed a few months back, assuming that you already have access to a PC.) I didn't delve too deeply into the security apsects of the system, since my workgroup consists of me, me, and, sometimes, my lady wife. Since she is privy to all my secrets, there's no point in me restricting access to any portions of the hard disk.

Even so, had I so desired, Simplenet and the CPCs can conspire together to make such restrictions, as I said before – remember the diagrams? Well, if you so desire, you can restrict Fred or Mabel or Billy or whoever to their own directories (it might help if you have the last couple of issues to hand, just to refresh your memory about hierarchical driectory structures). As well as their own working directories, the majority of Net Users will need access to directories containing the applications they're going to use. The only exception to this is the situation in which the user boots the application from Floppy Disc locally.

In my experience, this is not a brilliant idea. Again, there's little point in extablishing access to a high capacity storage medium if said medium is not going to be used to its fullest capacity. There's also the risk that a floppy will go missing – I've searched high and low for one particular 3" disc that has a few files on it that I need. Can I find it in amongst the hundreds of discs I have? (a clue - the answer isn't 'yes'!)

Of course, there are some problems with this as far as the CPC is concerned. It's fair to say that the vast majority of programs for Amsdos are anything but network aware. No blame can be attached for this. Networking CPCs together is not an every day happenstance, and I doubt that any of the software houses have even contemplated such a step, much less considered building explicit support for a network into their products. So, basically, we're talking suck it and see. If a program is open ended enough, it will run from a remote drive well enough. If the programmer has been tight with his code, then you may be stuck with using the local drive. I can't even give you a definitive list of what will and won't run over a network, but I can give you a few pointers.



1. These 'DISC.BAS' and 'DISC.BIN' files need to be renamed to something else, a reasonable obvious caveat. BUT, you may also need to edit them (the BIN files may cause problems here) to take out any explicit references to A: or B:. Wherever possible, use the default drive (ie. do not refer to a named drive, as in LOAD "A:DISC.BAS", but instead use LOAD "DISC.BAS", which uses the

currently logged drive)

2. It's not just DISC.BAS files that are similarly named – check for repeated filenames in every application you try to make network aware.

3. Watch out for programs which load overlay files. They quite often access named drives, which are hard coded into the programs themselves – these often HAVE to be run from A:.

4. Once you've got a program sorted out, make absolutely sure that any data files (text files, spreadsheet files, databases, and what have you) are maintained with filenames that are as unambiguous as possible, if they're to be kept in the same directory as the program files. It's much better to save such files off to the user's own directory, or a shared directory for a file that a number of people will work on.

Complex?

You may think from what we've covered so far that networking a few Arnolds together is a complex business. It is and it isn't. If you've given some thought to your strategy, and taken its implementation steadily, it's actually a quite straightforward task. The Nine Tiles network is really quite powerful (which usually means complex), but has been well designed (which normally means fairly easy to use), so you have what at first appears a paradox – a complex but quite simple to use system.

To distill the process down into simple steps, all that is required is to first of all map out the network on paper, using boxes to represent machines (and, ergo, users). That sorts out the physical infrastructure of the cabling. The next task is to sort out the security – the directories you will need as system manager. Again, get the pencil and paper out, and draw diagrams.

Finally, as the network ought to be completely specified at this point, you do the physical cabling and installation, and commission the software to get the whole thing up and running. If you take your time, and think before you act, it's as simple as you care to make it.

Conclusions.

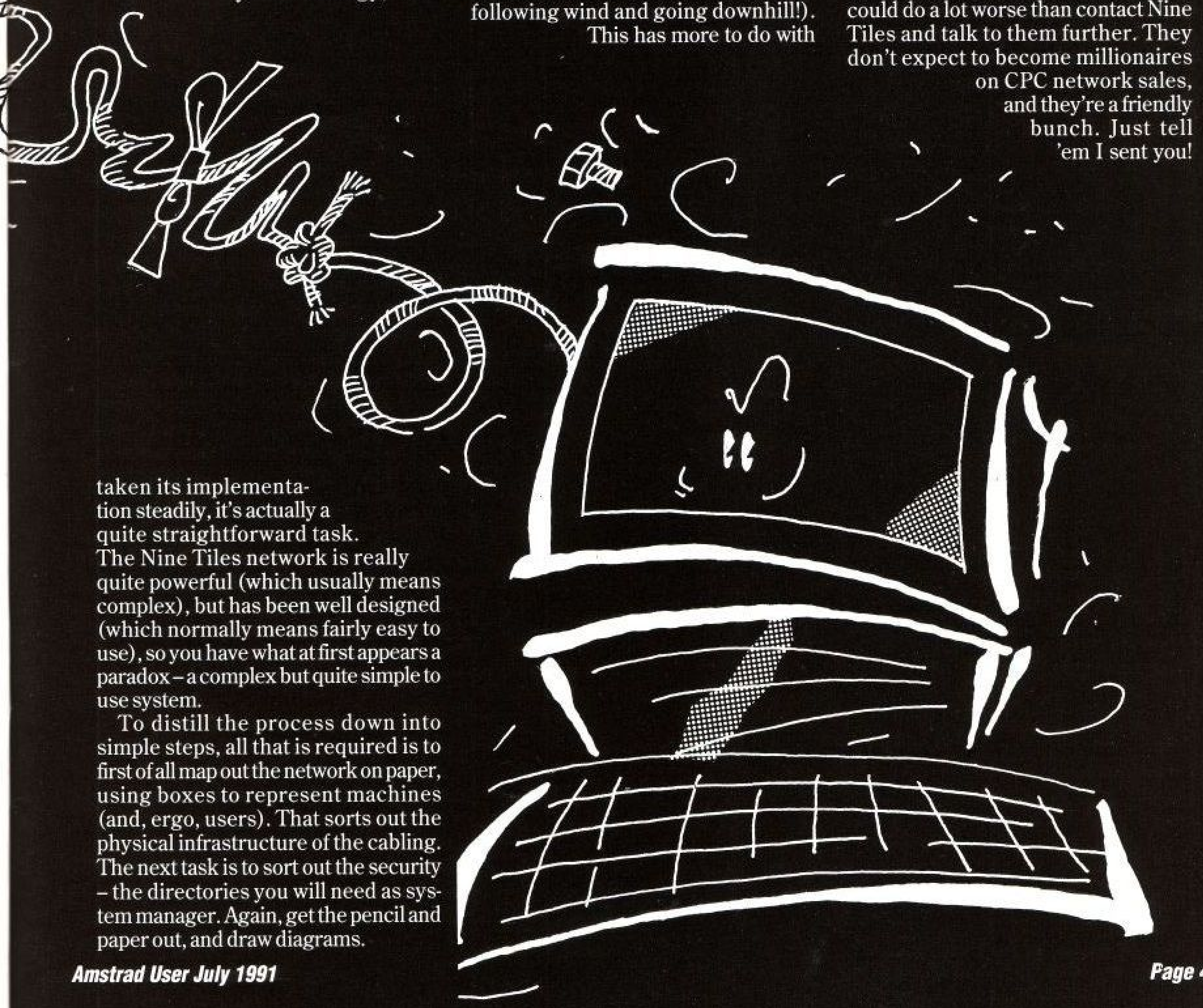
Apart from the obscure documentation, which may have prospective users reaching for the telephone for clarification (a fact which Nine Tiles are aware of) the CPC network is a robust and soundly specified product. I've found it to be reliable and relatively quick, given that it's based on machines that aren't fast in their own right.

I'd better explain that a little. I normally use very fast PC compatibles when I'm using a network, with 10megabit per second nominal transfer rate cards and cabling doing the shunting about. The CPC is not capable of keeping up with that kind of speed, and so is limited to a realistic maximum of something approaching 1 megabit per second under ideal conditions (with a following wind and going downhill!). This has more to do with an eight bit expansion bus and a quite slow clock speed (bear in mind that some machines I use are clocked at 33MHz - compare that with your Arnold's internal clock) plus an ageing processor than anything Nine Tiles has done to its kit.

In fact it's a testimony to them that the CPC network is as fine a piece of kit as it is. You may get the idea that I'm pleased with it, and you'd be right.

To be realistic, there isn't a great market for networks in the CPC world, and there is a body of opinion which suggests that, if you need to network, you need IBM PCs and their compatibles upon which to base the system. To a large extent that's true, if you have the cash with which to do it – and we're not talking hyper cheap here.

However, if your needs are simple, involving text processing, a little database work, and a little spreadsheeting, then the notion of a network based on CPCs is not at all unappealing. If you already have a number of CPCs being used in your environment, and sharing files is a regular occurrence, then you could do a lot worse than contact Nine Tiles and talk to them further. They don't expect to become millionaires on CPC network sales, and they're a friendly bunch. Just tell 'em I sent you!



THE HARDWARE PROJECT

Simon Watson takes the pain out of input/output port construction

Despite the numerous applications to which computers are suited, the majority of users generally stay within the confines of programming, recreation and off-the-shelf software packages. This is a great shame, as one of the most exciting aspects of computing comes in the form of exchanging data with the outside world. We are all accustomed to keyboard/joystick inputs and vdu/printer outputs, but few venture beyond these and into the world of computer interfacing.

Interfacing is a general term for forming a common boundary between two dissimilar regions. In computing applications, this usually entails a piece of hardware to intercept and transform signals exchanged between other devices – rather like a language translator.

This article describes the construction of just such a hardware project, called an input/output port. As its name suggests, the role of this device is to allow your amstrad to collect external data and to also control external devices. On a simpler level this could involve turning motors/lights/buzzers etc on or off and detecting inputs from switches. Applications using these basic building blocks include robotics, model railways, burglar alarms, along with a whole host of others. In short, computer interfacing provides an enormous range of possibilities for your humble home computer – as well as great deal of enjoyment.

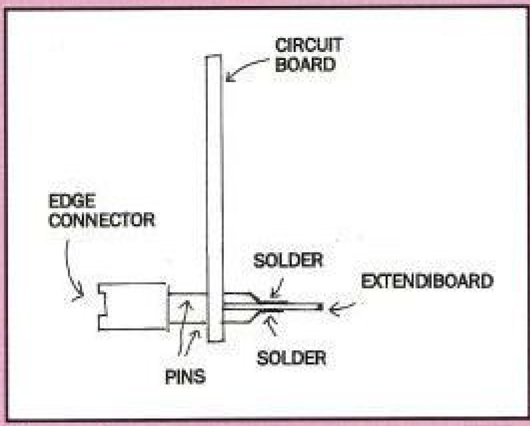


Figure 1

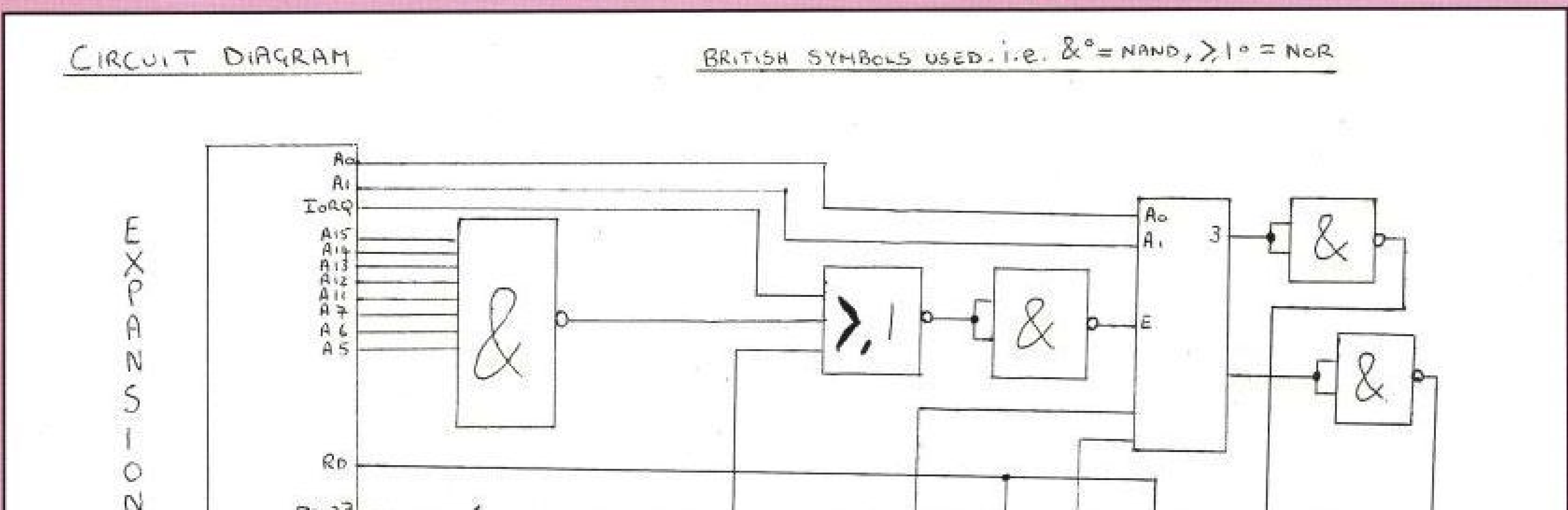
Many users can already take advantage of this because certain computers, notably the BBC A/S and Commodore 64/VIC 20, come equipped with such ports as standard. The Amstrad range, however, does not. In an effort to offer value for money, our beloved Arnold was deprived of this and many other useful interfaces… that is until now.

The interface I have designed can handle four times the amount of data that is catered for on the BBC/Commodore machines, and yet costs less than £10. For all you sceptics in the audience, this isn't a subsidised bulk price excluding VAT for 100,000 second-hand units off the back of a lorry from a dodgy Venezuelan used-parts dealer, but a realistic figure based on the usual mail-order catalogues. What's more, it doesn't even need batteries!

Circuit Description

For those of a technical persuasion, here is a short passage on the operation of the circuit. If you wouldn't know a memory request if you tripped over one and are not sure if you're active low, then skip to the next section. Basically, the circuit consists of an address decoder coupled to a series of buffers and latches. When an I/O request is made, and an address in the range &f8e0→&f8e3 is present on the bus i.e. A2→A4, A8→A10, IORQ are still low, and A5→A7, A11→A15 are all high, the enable input on IC3 is active. This device then takes the binary value of A0,A1 and activates one of four outputs accordingly. Outputs 1 and 2 from

Figure 2 below





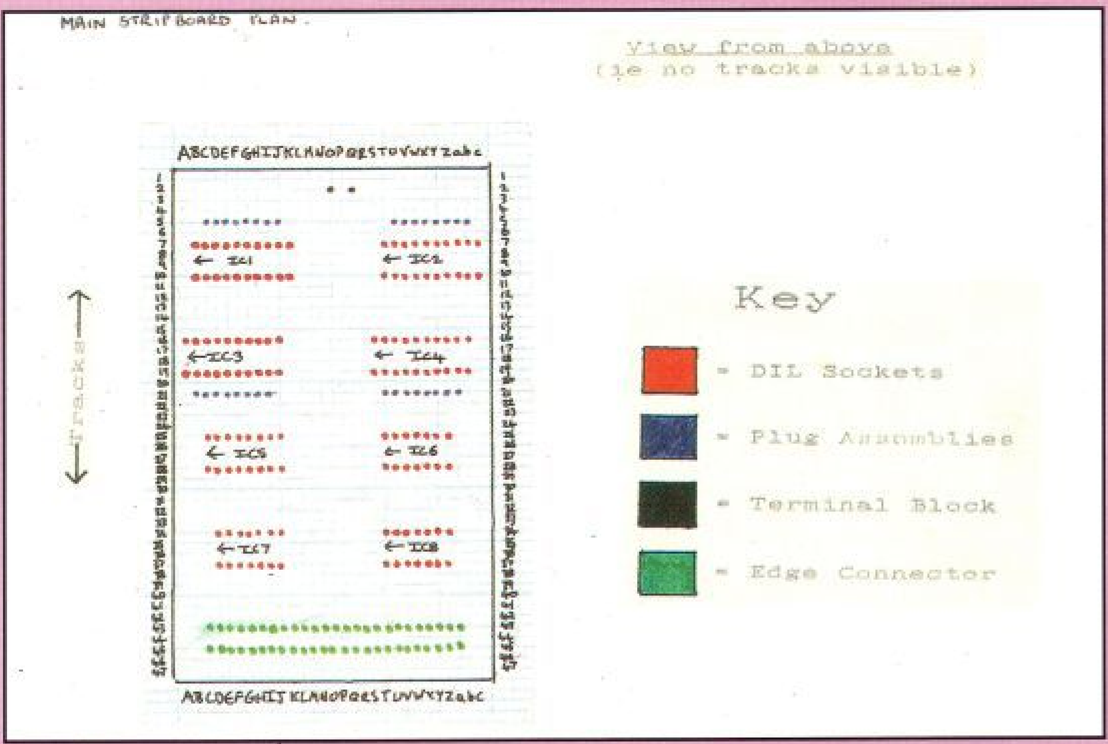


Figure 3

IC3 go to primary output enable pin on IC3 and IC4 respectively. These two ICs are both tri-state octal bus transceivers which will let their eight inputs pass onto the data bus when both their primary and secondary output enable pins are active. In this case the secondary pin is connected to the RD line thus making it impossible for data to be output to them. Outputs 3 and 4 from IC3 are inverted before being connected to the sole enable terminal on IC1 and IC2 respectively. Both these ICs are transparent octal latches which, when enabled, let the eight bits on the data bus pass to their outputs. When disabled they 'latch' this data, making it constantly available at their outputs.

Construction

The project is constructed on a small piece of stripboard, (often sold under the tradename 'Veroboard') measuring approximately 12cm x 7.5cm, enabling it to be used on all Amstrad CPC computers without any positioning problems. To ease the construction process, I have divided the board into a grid so that each hole is specified by two coordinates. This method should ensure that each component reaches its correct destination.

You will probably need to trim a piece of stripboard down to the required size of 29 strips by 47 holes. Having done this, use the main stripboard plan to align it correctly – bearing in mind that this is a view from above, i.e. the plain side of the board, and that the tracks/strips run vertically (underneath the board). At this stage, it may be as well to lightly rub the copper tracks with some wire wool in order to remove any oxide or grime that might have accumulated.

The next step is to break the tracks at the listed holes. To form a break, simply place a suitable drill bit in the hole and twist until the surrounding copper has been removed and the track is cut. Remember to view the board from ABOVE when locating these holes! It is a good idea to push a piece of wire through from above so that you don't misplace the hole when turning the board over. IMPORTANT: Check whether the coordinate's letters are upper or lower case – there is a difference!

If you have not already acquired the art of soldering, then some practice is advisable before embarking on the next few stages. Like most things, soldering is tricky at first but soon becomes second nature. The basic points to remember are that the iron's bit should touch both the base of the component leg and the track for about a second before the solder is applied to the opposite side of the leg. When the solder has flowed around the leg remove both solder and iron. A good joint should resemble a small shiny cone and must not infringe upon any of the neighbouring holes.

The stripboard plan shows the positions of the first components to be soldered. Begin with the 2x25 way edge connector. Do not mount this too close to the board but still try to leave about 7-8mm protruding from the track side so that the 'extendiboard' can be fitted later. Next, mount the DIL (Dual-In-Line) sockets in their correct positions remembering that there are four 20-pin, one 16-pin and three 14-pin sockets. The 2-pin terminal block that allows connection to the port's power lines should also be soldered into place. Finally, position the four 8-pin locking plug assemblies which provide access to each of the ports. I chose these particular connectors as they provide a compact, easy to use, and reasonably cheap connection system – although

Track Break List [REVISED]

P40→R40	B09→R09	K40	A22
S42→Z42	T09→c09	D30	B22
C44→a44	T36→Z36	E31	C23
D36→J36	V31→X31	F32	Z30
C27→J27	T27→Z27	G31	K13
D24→J24	S22→a22	H32	T31
S18→b18	C42	I32	U32
A16→J18	G40	J39	J31

(NOTE: P40→R40 etc denotes breaking holes P40, Q40, R40 etc)

Figure 4

Connection List for Wire Links [REVISED]

G39-H46	A42-P42	U31-Z31	U24-H30	J15-R15
K39-L46	G41-T41	T30-U30	S24-T24	L11-U11
P39-M46	P41-S41	Z29-a29	S20-G30	B12-O06
Q39-N46	R42-b42	C29-V29	S25-S15	M11-W11
R39-O46	Z39-a39	F30A20	J20-K12	N12-Y12
U41-F46	B38-J38	A26-A15	A06-B06	O12-a12
V41-G46	K41-E29	A24-C24	S06-T06	P13-X13
W41-I47	A31-D31	B23-J23	B11-K11	Q14-Z14
X41-J47	B29-J29	a27-b27	C12-L12	R14-b14
Q05-S05	J40-U33	Z24-C06	E12-M12	T15-c15
R46-c46	Y38-X30	b20-c12	G13-N13	D13-V13
K47-D29	X33-b33	X23-Y23	D14-K14	
E47-G32	J33-W33	U23-V23	I13-O13	
D46-F33	S32-T32	X24-I30	F14-P14	
B46-C46	V32-W30	W24-K06	H15-Q15	

(NOTE: G39-H46 deontes a wire link connecting holes G39 and H46!)

Figure 5

Capacitor Connections

B07-K10	T07-c10	A16-J19	S16-b19	T34-Z37

Component List

Part No.	Description	Maplin Code
IC1,2	74HC573	See Note
IC3,4	74HC541	UB93B
IC5	74HC139	UB35Q
IC6	74HC00	UB00A
IC7	74HC30	UB14Q
IC8	74HC27	UB13P
C1→5	100nF Minidisc	YR75S
Edge Connector	2x25 way	FA87U
Stripboard 29 strips x 58 holes		JP48C
4 x 20-pin DIL skt		HQ77J
1 x 16-pin DIL skt		BL19V
3 x 14-pin DIL skt		BL18U
1 x 2-way terminal blk		FT38R
4 x 8-way locking plug assem		YW13P (or equivalent)
10m connection wire		BL95D (optional)
Amstrad Extendiboard		GB99H (optional)

(NOTE: The 74HC573 IC is not yet available from Maplin despite it being a commonly used 74 series device: Ask your local Tandy store, electronics dealer, school/college to order it on your behalf from either RS Components (code 643-512) or Farnell Components (code M74HC575B1N), price approx 70p. Both these mail-order giants will only deal with legitimate trade customers, educational establishments, government agenices etc.)

Figure 7

Contacts

Maplin electronics:	PO Box 3, Rayleigh, Essex, SS6 SLR. Tel: 0702 554155
Farnell Components:	Sales Tel: 0532 636311 Accounts Tel: 0532 794444
RS Components:	Tel: 0536 201234

Figure 8 (above)
Figure 6 (left)

they are not quite as robust as certain, more expensive, alternatives. Feel free to substitute the connectors which best suit your needs.

Wire links must now be soldered into place to complete the basic circuit structure. There are no special requirements for the wire used but it is advisable to employ an insulated single core type. This does not have any small strands that splay out when pushed through holes, nor will it easily lose its shape. Maplin Electronics can provide ten metres of such wire for around 24p. Follow the connection list, taking care with the way that you route the longer wires. You could, of course, quickly connect them in a haphazard fashion but this would look a mess, take up much space, and make fault-finding an absolute nightmare. Instead, try to keep each wire as close to the board as possible and bend it only at right angles. The shortest route is not always the neatest; for example, the first ten links could be routed between the pins of the edge connector.

The final components to be soldered, five capacitors, are connected directly to the underside of DIL sockets, on the track side of the board. All five capacitors are identical and do not require special alignment. Locate the holes, given in the list, as usual (from above) and then turn the board over and solder the component legs to the legs of the respective DIL socket. A vital precaution is to slide a piece of rubber tubing over each capacitor's legs to prevent a short circuit occuring. The capacitors' bodies may be kept flat against the board without any problems.

In order to allow other external peripherals to plug into the back of the input/output port, an 'extendiboard' must be fitted. This is placed on the trackside of the board, between the protruding pins of the edge connector. The pins must first be bent (a vice is handy), as illustrated in the diagram, so that they can be soldered to the extendiboard. This is fairly tricky and is worth spending some time on, in order to ensure a firm connection. Of course, if you do not intend to add extra peripherals in the immediate future then this stage can be ommitted. For most users however, particularly 464 owners with a DDI-1 interface, it will be an essential stage.

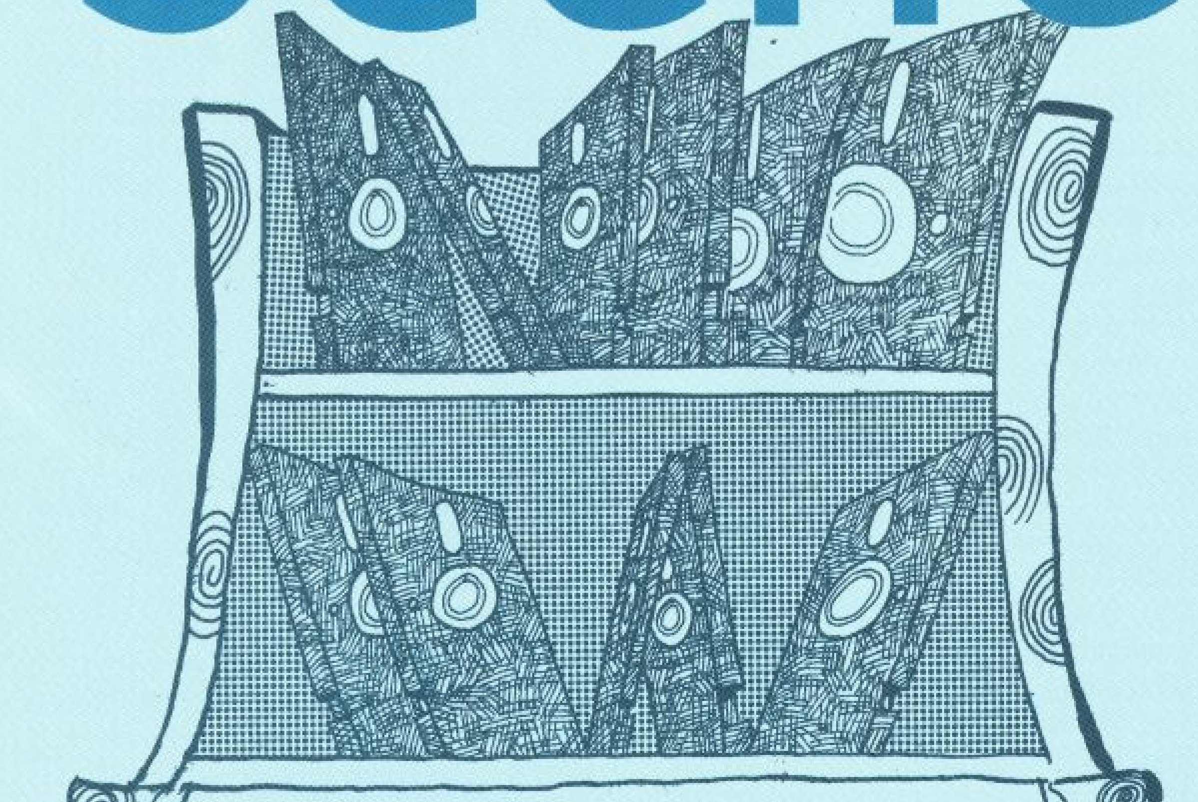
Having progressed this far, check for any possible mistakes and then insert the board into the (switched off) computer's expansion port located at the rear of the machine. If, upon powering up the computer, anything untoward happens then immediately switch off the machine and remove the board. Check all the wire links and ensure that each track break does actually sever its track completely. Also make sure that adjacent tracks are not joined – running a soldering iron between tracks should rectify this.

Once the computer's normal power-up sequence remains unaffected by the board's presence, the integrated circuits (known to their friends as 'chips') may be inserted into their designated sockets. The question of which IC goes into which socket can be ascertained from the main stripboard plan and the list of components.

It is very important that the notch located on one side of each IC's casing points to the left. As a further check, when the board is plugged into the expansion port, the writing on each IC should be the correct way up, i.e. readable. The particular ICs used in this project are not prone to static charges so they may be handled with bare hands. Despite this, the legs are still very delicate and should be treated gently. A screwdriver blade is often useful to help align ICs, insert the board once more and switch on the computer. Any faults that occur now are likely to be centred around faulty ICs.

OK. So now you've got a fully operational input/output port sitting in the back of your computer. No flashing light, no impressive whirring noises (hopefully!), so what use is it? Read on next month and find out.

PD Scene



Paul Tint rounds up the latest PD library news

A few months ago a new PD library quietly slipped into the 'Where to go' box. I am, of course, talking about Adventure PD.

Adventure PD is run by Debby Howard, Adventure columnist for CPC User fanzine. You don't have to be a mastermind to deduce that Debby's library is dedicated only to adventures, you'll find no Clip Art or CP/M in her collection. However, as Debby herself points out, Adventure PD offers a lot more than just adventures. You can phone or write for help and a large range of solutions and maps (for both PD and commercial adventures) are available at a small cost.

Quite surprising, PD is available on both disk and cassette although there are far less cassette adventures available. With the average selection taking about 25 minutes to duplicate on cassette, I doubt whether the cassette service will last long, so 464 owners looking for cheap adventures had better write away without haste.

A full list of the latest adventures, solutions and maps is available free to all who send a stamped SAE. However, a more detailed catalogue is available on disk. The disk catalogue contains reviews on ALL the adventures in the library with a free adventure. Also on the catalogue is a special feature exclusive to Adventure PD which lists EVERY known commercial and PD adventure released on the CPC. It also gives details of the author and publisher! For the address and ordering details see the 'Where to go' box.

Data update

After announcing the withdrawal of cassette PD last month, Data PD has reintroduced it! However the address for cassettes is different from that for disks. At the moment I have very little information about the new cassette section, except that it is run by David Nagle and has a big range! More information will reach these pages just as soon as we get it, but until then pop a stamped SAE to the relevant address in the 'Where to go' box for more details

Scull hits 100

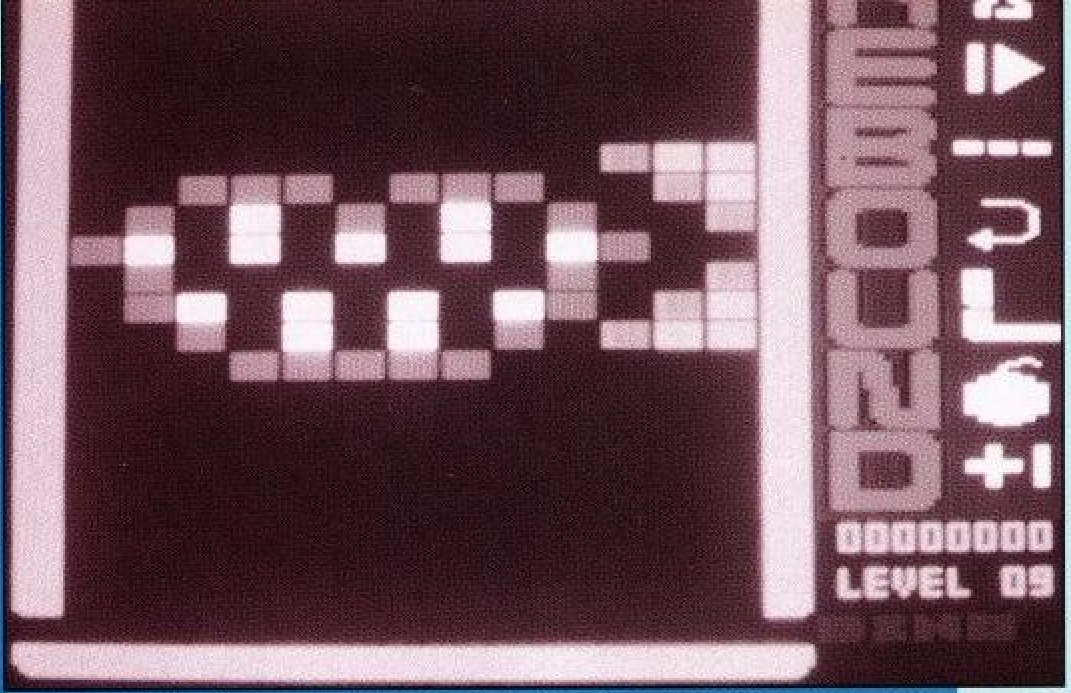
The every increasing Scull PD has become the first PD library to reach 100 disks. As well as the PD in the library, two non-PD games are available. Rebound is a version of the now famous Break-Out game and Bandit is a full featured fruit machine. The games are supplied together, on disk, for £5 (this includes disk and postage). For more details see the advert in this issue or send a stamped SAE.

Like Adventure PD, Scull has it's detailed catalogue on disk. Recently totally rewritten the catalogue contains details on all the disks in the library and has reviews of Rebound and Bandit. There are also a few free programs. The first is an adventure called 'Kidnapped' by W P Dixon. The second is a demo of the game Rebound, and the third is part of the mighty Twinblast demo. Have a look at the 'Where to go' box for details on how to order.

Word Games

Just released into the public domain is a 360K set of word games by Keith Mortimer. There are 7 games in total and a 200K crossword compiler with dictionary and print routines..

The games are Nobble (a Scrabble



type crossword game for 2-4 players with a choice of 9 playing boards), Wordwars (Battleships with words), Steal (Form words from a board of 200 random letters, towards the end you must steal letters from your opponent's board to survive!), Word Dominoes (as the title sugests), Waren (Pacman style word muncher maze game), Crossfire (create words from randomly generated letters, complete with insults!), and Loot (the only non word game, hunt the treasure in a maze).

The crossword compiler is particularly good, the only failing being it needs 128K to store the dictionary. However, if you have the K and the patience to learn how to use the program it produces rather good results. Example crosswords are provided and there is ample documentation. The Keith Mortimer Collection (now that's an original name), should be available now from both Scull and Data PD.

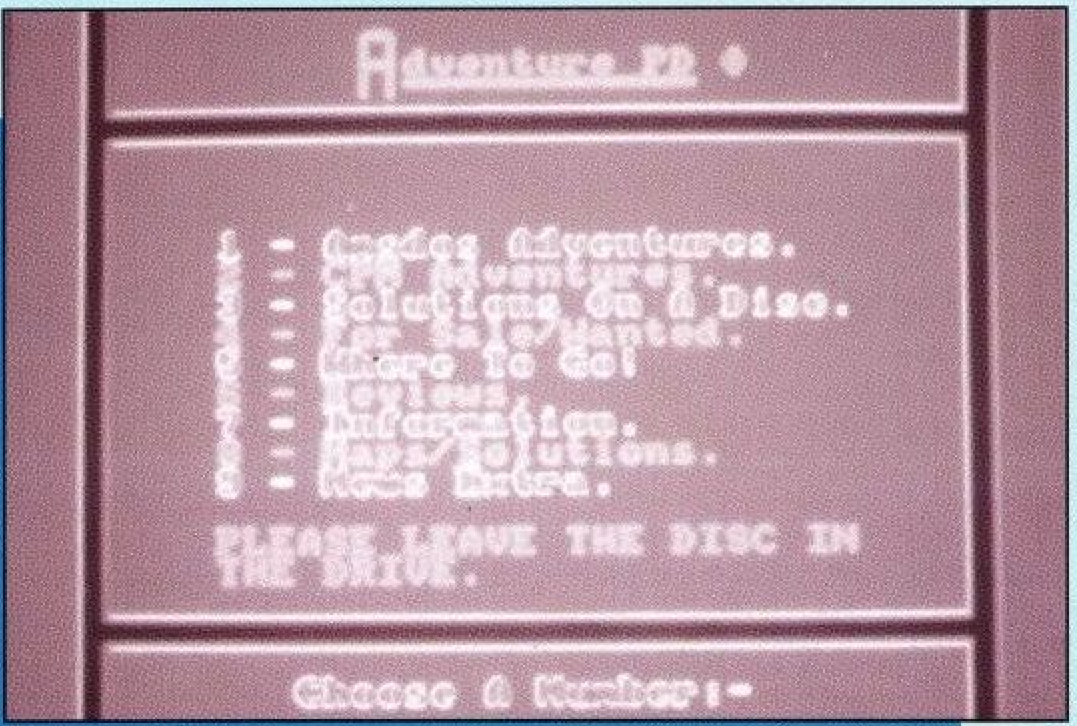
Where to go

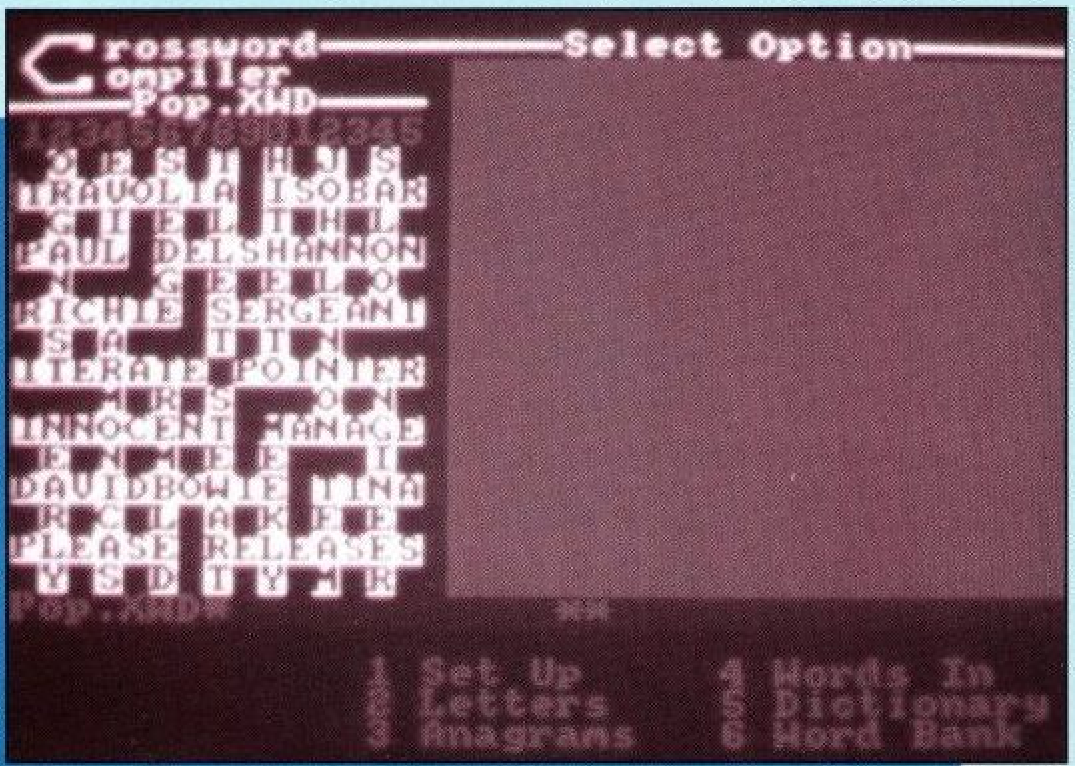
● Scull PD Library, 9 Barra Wynd, Broomlands, Irvine KA11 1DB.
Scull PD had over 100 disks of software including Pagemaker Plus and superb non PD games at PD prices! (see the Rebound and Bandit advert in this issue). The Scull newsletter is free to anyone who sends a stamped SAE. Send a disk and stamped SAE for the catalogue disk. Add £1 for sample programs. Please make cheques payable to 'alan Scully'.

● Data PD Disks, 202 Park Street Lane, Park Street, St Albans, Herts AL2 2AQ.
Data offers just over 50 disks of software. Send a disk and a stamped SAE for the disk based newsletter/stock list. Add 50p for some sample programs. Make cheques payable to Tony Kingsmill. Overseas send £3.50 extra for disk and postage to be supplied.

● Data PD Cassettes, 4 Hare Lane, Hatfield, Herts AL10 8PP.
Perhaps the only cassette PD library in the UK. Send a stamped SAE for details.

● Adventure PD, 10 Overton Road, Abbey Wood, London SE2 9SD
or phone Debby on 081 310 9877. As its name suggests, Adventure PD supplies adventures only (well I never!) But it is more than just a PD library. It offers a help service, maps, solutions and non PD programs. Send a stamped SAE for a copy of the free catalogue or a disk and stamped SAE for the disk catalogue. Please make cheques payable to 'Debby Howard'.





Get in touch!
Do you run a PD library? Fancy some free publicity? If so just scribble some details on a bit of paper (or a £20 note?) and I'll do the rest. If you send a disk for review then enclose an SAE for its return.

You don't have to run a PD library to write either. Perhaps you're selling some programs at PD prices? Or you may have praise or complaints about a certain library? Whatever you've got to say, I want to hear it. So what are you waiting for?

```
10 '8-bit print routine; J.G. Gibbs, June 1989. [F1]
20 MODE 2:BORDER 26:INK 1,0: INK 0,26:esc=27:hival=62:loval=61 [05]
30 query$="Is your printer EPSON compatible?": GOSUB 400 [DD]
40 IF reply$="Y" THEN GOTO 80 [70]
50 INPUT"Please input the escape code for your printer : ",esc [C8]
60 INPUT"and the code to set bit 8 to 1 : ",hival [AF]
70 INPUT"and the code to set bit 8 to 0 : ",loval [51]
80 query$="Do you want to specify a load address?": GOSUB 400 [EA]
90 IF reply$="N" THEN MEMORY HIMEM-90: base=HIMEM+2: GOTO 110 [4F]
100 INPUT"Please specify load address required : ",base [8C]
110 entlo=PEEK(&BDF2):enthi=PEEK(&BDF3): 'read printer indirection [31]
120 FOR i=0 TO 84 [08]
130   READ incode [A4]
140   IF incode<>1000 THEN POKE base+i,incode:GOTO 190:'not relocatable address [01]
150   READ offset: 'to be loaded to himem+i, himem+i+1 [93]
160   GOSUB 460: 'convert to actual address [09]
170   POKE base+i,lobyte%: i=i+1 [4E]
180   POKE base+i,hibyte% [FE]
190 NEXT i [B9]
200 POKE base+82,hival [43]
210 POKE base+83,loval [0F]
220 POKE base+84,esc [F6]
230 POKE base+64,entlo [75]
240 POKE base+65,enthi [AF]
250 POKE base+73,entlo [78]
260 POKE base+74,enthi [B2]
270 offset=0: GOSUB 460 [1B]
280 POKE &BDF2,lobyte% [F6]
290 POKE &BDF3,hibyte%: 'access new driver [B6]
300 END [EC]
310 : [87]
320 DATA &E5,&D5,&C5,&F5,&D6,&80,&FA,1000,37,&3A,1000,81 [1B]
330 DATA &ED,&44,&C2,1000,62,&3E,&01,&32,1000,81,&3A,1000,84 [AE]
340 DATA &CD,1000,70,&3A,1000,82,&CD,1000,70,&C3,1000,62,&3A,1000,81 [A8]
350 DATA &ED,&44,&CA,1000,62,&3E,&00,&32,1000,81,&3A,1000,84,&CD,1000,70 [9E]
360 DATA &3A,1000,83,&CD,1000,70,&F1,&CD,00,00,&C1,&D1,&E1,&C9 [62]
370 DATA &C5,&F5,&CD,&00,&00,&D2,1000,72,&F1,&C1,&C9 [76]
380 DATA 0,0,0,0 [D5]
390 : [97]
400 'input query subroutine [A4]
410 query$=query$+"  Y/N : ":PRINT query$; [3B]
420 INPUT " ",reply$: reply$=UPPER$(reply$)  [09]
430 IF reply$<>"Y" AND reply$<>"N" THEN GOTO 410 [76]
440 RETURN  [C6]
450 : [90]
460 'address calculation subroutine [B0]
470 addr=base+offset [2A]
480 part1=addr/256 [C0]
490 hibyte%=part1 [90]
500 delta=hibyte%-part1 [AA]
510 IF delta>0  THEN hibyte%=hibyte%-1:'rounded up  [3A]
520 lobyte%=(part1-hibyte%)*256 [9E]
530 RETURN [C5]
```

THAT 7-BIT PRINTER PORT!

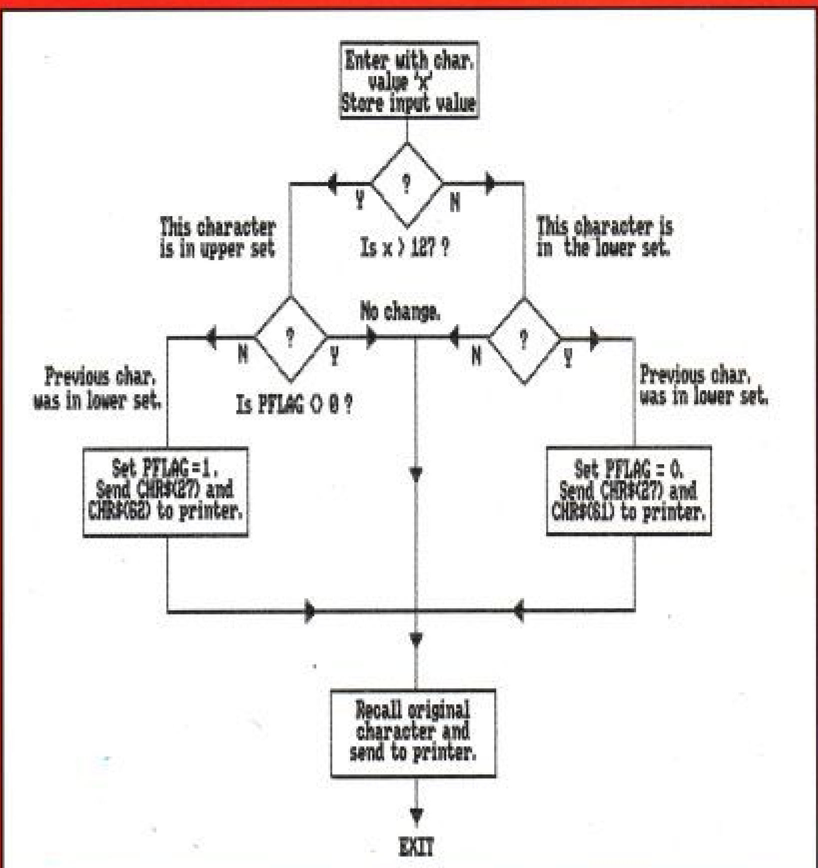
Make the most of your printer ports with some nifty programming from Mr. Gibbs.

We all know the frustration of being aware that the number of printing characters on our printers is up to twice as large as those that we can access through the Amstrad 7-bit printer port; and we are usually told that the only solution is to buy or build hardware. For many people, though, that just isn't true! If your printer accepts EPSON control codes – and that includes an awful lot of printers – a very short replacement driver will unlock the full character set.

The control sequence CHR$(27) + CHR$(62), sent to an EPSON printer, instructs it to assume that the value of bit(8) is always 1, whilst the sequence CHR$(27) + CHR$(61), instructs it that the value of bit(8) is to be taken as zero. This is precisely what is required to lock the printer into the lower character set (values <128) as delivered by the 7 bit port, which has no bit(8); or to force it into the upper set (values>127).

It is relatively simple to produce BASIC subroutines which replace the PRINT instruction, and introduce the control sequences whenever the character to be output changes from one set to the other. On the other hand, it slows printing, and it prevents the use of the more exotic facilities of the PRINT routines. A better way of proceeding is to use an assembly-coded routine which intercepts the output stream at the printer indirection point so thoughtfully provided by Amstrad.

The program 'fullport' provides full 8-bit printing for an EPSON-compatible printer. The machine code is contained in the data statements in lines 320–380, and Fig. 1 is a block diagram of this



code. The program intercepts the output stream at the character level. It will be seen that variable 'pflag' remembers whether the last character sent was a member of the upper or lower set. The current character is tested to see the set to which it belongs. If it is in the same as the previous character, it is transmitted immediately. If, on the other hand, it is in the alternate set, the control sequence to set bit(8) in the printer is sent before the character itself is transmitted. This minimises the number of control codes interspersed into the data stream. The BASIC program has a number of functions. It asks whether the printer is EPSON compatible, and if so loads the correct values into the variables exc, hival and loval. If the printer is not EPSON compatible, but has a similar facility, then there is the possibility of loading the correct codes.

```
STAR LC-10 printer; std. character set

( 33 )   !    "    #    $    %
( 38 )   &    '    (    )    *
( 43 )   +    ,    -    .    /
( 48 )   0    1    2    3    4
( 53 )   5    6    7    8    9
( 58 )   :    ;    <    =    >
( 63 )   ?    @    A    B    C
( 68 )   D    E    F    G    H
( 73 )   I    J    K    L    M
( 78 )   N    O    P    Q    R
( 83 )   S    T    U    V    W
( 88 )   X    Y    Z    [    \
( 93 )   ]    ^    _    `    a
( 98 )   b    c    d    e    f
( 103 )  g    h    i    j    k
( 108 )  l    m    n    o    p
( 113 )  q    r    s    t    u
( 118 )  v    w    x    y    z
( 123 )  {    |    }    ~
( 161 )  !    "    #    $    %
( 166 )  &    '    (    )    *
( 171 )  +    ,    -    .    /
( 176 )  0    1    2    3    4
( 181 )  5    6    7    8    9
( 186 )  :    ;    <    =    >
( 191 )  ?    @    A    B    C
( 196 )  D    E    F    G    H
( 201 )  I    J    K    L    M
( 206 )  N    O    P    Q    R
( 211 )  S    T    U    V    W
( 216 )  X    Y    Z    [    \
( 221 )  ]    ^    _    `    a
( 226 )  b    c    d    e    f
( 231 )  g    h    i    j    k
( 236 )  l    m    n    o    p
( 241 )  q    r    s    t    u
( 246 )  v    w    x    y    z
( 251 )  {    |    }    ~
```

```
STAR LC-10 printer; IBM character set 2

( 33 )   !    "    #    $    %
( 38 )   &    '    (    )    *
( 43 )   +    ,    -    .    /
( 48 )   0    1    2    3    4
( 53 )   5    6    7    8    9
( 58 )   :    ;    <    =    >
( 63 )   ?    @    A    B    C
( 68 )   D    E    F    G    H
( 73 )   I    J    K    L    M
( 78 )   N    O    P    Q    R
( 83 )   S    T    U    V    W
( 88 )   X    Y    Z    [    \
( 93 )   ]    ^    _    `    a
( 98 )   b    c    d    e    f
( 103 )  g    h    i    j    k
( 108 )  l    m    n    o    p
( 113 )  q    r    s    t    u
( 118 )  v    w    x    y    z
( 123 )  {    |    }    ~
( 161 )  í    ó    ú    ñ    Ñ
( 166 )  ª    º    ¿    ⌐    ¬
( 171 )  ½    ¼    ¡    «    »
( 176 )  ░    ▒    ▓    │    ┤
( 181 )  ╡    ╢    ╖    ╕    ╣
( 186 )  ║    ╗    ╝    ╜    ╛
( 191 )  ┐    └    ┴    ┬    ├
( 196 )  ─    ┼    ╞    ╟    ╚
( 201 )  ╔    ╩    ╦    ╠    ═
( 206 )  ╬    ╧    ╨    ╤    ╥
( 211 )  ╙    ╘    ╒    ╓    ╫
( 216 )  ╪    ┘    ┌    █    ▄
( 221 )  ▌    ▐    ▀    α    ß
( 226 )  Γ    π    Σ    σ    µ
( 231 )  τ    Φ    Θ    Ω    δ
( 236 )  ∞    φ    ε    ∩    ≡
( 241 )  ±    ≥    ≤    ⌠    ⌡
( 246 )  ÷    ≈    °    ∙    ·
( 251 )  √    ⁿ    ²    ■
```

The machine code may either be loaded above HIMEM, or directed to a specified location. If loaded above HIMEM, the MEMORY limit is adjusted to protect the code until a general reset is performed. In particular, it will not be lost as a result of clearing the BASIC program by use of 'new' or 'load'.

In the DATA statements, the value 1000 is used to mark an address to be relocated, and the next constant defines the offset of that address from the first instruction of the program. Lines 120 – 190 read and assemble the code.

The MC-WAIT-PRINTER indirection is to be found at location &BDF1, and takes the form of an unconditional jump. The destination addresses differ between the various versions of CPC, so line 110 reads the low and high bytes of the address for the machine in use. These are then POKED into the printer calling instructions in the machine code routine, replacing zero values loaded from the data. The lines 200 – 220 load the constants for a particular printer into the code routine.

The test program, used with a STAR LC-10 printer, prints out the full character sets in normal and IBM mode, showing the italic and graphics symbols available. The numbers in parentheses show the character value of the first character on each line, and also demonstrate the switching between upper and lower sets.

```
Hisoft GENA3.1 Assembler. Page     1.

Pass 1 errors: 00

A028              10          ORG  41000
A028  E5          20          PUSH HL
A029  D5          30          PUSH DE
A02A  C5          40          PUSH BC
A02B  F5          50          PUSH AF          ; preserve all registers
A02C  D680        60          SUB  128         ; is character in high or low set?
A02E  FA4DA0      70          JP   M,LOVAL     ; char not above value 127
A031  3A79A0      80          LD   A,(PFLAG)   ; is print in high mode?
A034  ED44        90          NEG
A036  C266A0      100         JP   NZ,CHOUT    ; yes, so transmit
A039  3E01        110         LD   A,1         ; pflag non-zero in high mode
A03B  3279A0      120         LD   (PFLAG),A
A03E  3A7CA0      130         LD   A,(ESCODE)  ; escape code for printer
A041  CD6EA0      140         CALL PSEND       ; standard transmission routine
A044  3A7AA0      150         LD   A,(HIMARK)  ; set bit 8 to 0
A047  CD6EA0      160         CALL PSEND
A04A  C366A0      170         JP   CHOUT       ; send original character
A04D  3A79A0      180 LOVAL:  LD   A,(PFLAG)
A050  ED44        190         NEG
A052  CA66A0      200         JP   Z,CHOUT     ; char<128 and print in low mode
A055  3E00        210         LD   A,0
A057  3279A0      220         LD   (PFLAG),A   ; zero pflag denotes low mode
A05A  3A7CA0      230         LD   A,(ESCODE)
A05D  CD6EA0      240         CALL PSEND
A060  3A7BA0      250         LD   A,(LOMARK)  ; set bit 8 to zero
A063  CD6EA0      260         CALL PSEND
                  270 ;
A066  F1          280 CHOUT:  POP  AF          ; recover original character
A067  CD3508      290         CALL #0835
A06A  C1          300         POP  BC
A06B  D1          310         POP  DE
A06C  E1          320         POP  HL          ; recover initial conditions
A06D  C9          330         RET
                  340 ;
A06E  C5          350 PSEND:  PUSH BC
A06F  F5          360         PUSH AF
A070  CD3508      370 CLOOP:  CALL #0835
A073  D270A0      380         JP   NC,CLOOP    ;      wait for printer to be free
A076  F1          390         POP  AF
A077  C1          400         POP  BC
A078  C9          410         RET
                  420 ;
A079              430 PFLAG:  DEFS 1
A07A  3E          440 HIMARK: DEFB 62
A07B  3D          450 LOMARK: DEFB 61
A07C  1B          460 ESCODE: DEFB 27
A07D              470         END

Pass 2 errors: 00

Table used:   112  From   222
```

```
10 PRINT#8,"STAR LC-10 printer; std. character set [82]
20 PRINT#8,CHR$(27)+"t0" [10]
30 GOSUB 100 [A9]
40 PRINT#8,CHR$(12):'throw page [11]
50 PRINT#8,"STAR LC-10 printer; IBM character set 2 [B8]
60 PRINT#8,CHR$(27)+"t1" [2B]
70 GOSUB 100 [AD]
80 PRINT#8,CHR$(12); 'eject second page [29]
90 END [ED]
100 FOR i=33 TO 126 STEP 5 [9B]
110 PRINT#8,"(";STR$(i);" )";TAB(10);CHR$(i);TAB(20);CHR$(i+1);TAB(30);CHR$(i+2);TAB(40);CHR$(i+3);TAB(50);CHR$(i+4) [C5]
120 NEXT [31]
130 FOR i=161 TO 254 STEP 5 [5C]
140 PRINT#8,"(";STR$(i);" )";TAB(10);CHR$(i);TAB(20);CHR$(i+1);TAB(30);CHR$(i+2);TAB(40);CHR$(i+3);TAB(50);CHR$(i+4) [CB]
150 NEXT [37]
160 RETURN [C7]
```

It is possible to tangle the system by switching the printer off whilst printing in the upper set, because the printer will come back on line in the lower set, whilst the software thinks it is still in the upper. To get back in step, send any element of the lower set. This will switch the software into the proper condition.

Let your finger do the talking

Gallant Gordon dabs the digits and takes his Arnold online for another cruise through Comms land.

Did anybody go to the Which? Computer Show at the NEC back in April? I know there was never a chance there'd be much of interest to CPC users, but I had a free ticket, so I decided to go. All PCs, it was, with a smattering of a few also-rans as well. Still, I had my eyes peeled for Comms related stuff, and it seems that our hobby is gaining momentum.

Why so? Well, across the hall from the Which? affair the Comms '91 show was taking place. Therein lay everything comms, from cables to modems to pretty sockets to wire into your phone line, and a fair bit besides. Talk about taking a dog into a forest and telling it to choose the tree! I spent the first hour walking round gobsmacked, even though I was reliably informed that a great chunk of the industry was unrepresented. Something to do with the show being, traditionally, a bi-annual event (for the hard of hearing, that means it takes place once every two years – it has nothing to do with hard backed comics bought at Christmas!). Anyway, my contacts tell me that next year's bash ought to be better attended. Lord, will it ever be crowded then!

Anyway, after I'd managed to unsmack the ol' gob, I got down to some serious rubbernecking to see just exactly what was going on in the comms world this year. As if you hadn't already guessed, there were three totally unsurprising areas that show majored on. After the Chancellor's 200 tax shocker on Cellular phones, Cellnet devoted mucho time to explaining how to optimise your costings on the system.

Now, yours truly pinned his ears back well and truly to get the low down from the experts, since I can't get an answer on whether I'm going to be stuck with an unexpected bill for my talking brick (the in term for a Motorola 8500X cellular jellybone). No, I'm not going to fill you in on what it's all about – it's more or less concerned with keeping your air-time down by using advanced features on your equipment. Much the same as I keep harping on about with modem working, really, it boils down to using timer beeps on your phone, and signing off a call as close to the half minute charge toggle as possible.

Second area? Caused by much the same sort of thing, the new CT2 phones (the cordless 'beam-me-up, Scotty' outgoing calls only units that work on the Zonephone network) were receiving lots of attention. Seems Mr. Lamont has finally decided not to stick a punitive tax on Zonephones, 'cos they're really for the man in the street – well, you're hardly going to use one in a swimming pool, are you? (there's a joke in there somewhere!)

Anyway, because there's been some shuffling around of the players in this market, the griff is that we ought to be able to purchase a Zonephone for around a hundred beer tokens real soon now. And not a moment too soon, folks, not a moment too soon. Why? Simple. You use one of these little jobbies at much the same sort of cost as a normal phone call. Contrast that with the Cellphone charges, and you'll see lots of folks wandering round with their Spenderphones being used only for incoming calls, while the Zonephones get pulled out of the briefcase for the call home. If BR install repeaters every couple of hundred yards up the east coast line, Standard Class travellers will be as bad as the first class lot (yes, that includes me) who only ever seem to use their poserphones to call the missus rather than order a taxi.

There'll only be one difference – the posh end mob try to make their calls sound like mega-important business calls (don't I?) while the Supersaver Zonephone friendlies will be blatant about it. "Hello, pet, can you pick us up about half past seven? I know the train gets in at five, but the pub's quiet then. I'll get yer a fruit juice in, darlin'". Hehe!

But on with the plot! The final area, and probably the most interesting, was the modem launches. Now, you had to be eagle eyed to spot them, but they were there. All the latest units were secreted here and there, even if the majority of the manufacturers didn't actually show up on a stand. For instance, John Babb, MD of Hayes UK, was to be seen accompanied by two of his PR staff depositing the odd modem or two (super fast jobs, they were) on stands in both the Comms show and the Which? show. I'm told I may be getting my mitts on one for review, and having played with them before, briefly, I'm looking forward to the experience. After all, if Hayes can't get it right (who is the Hayes standard named after? Well, it isn't Melvyn, is it?) who can?

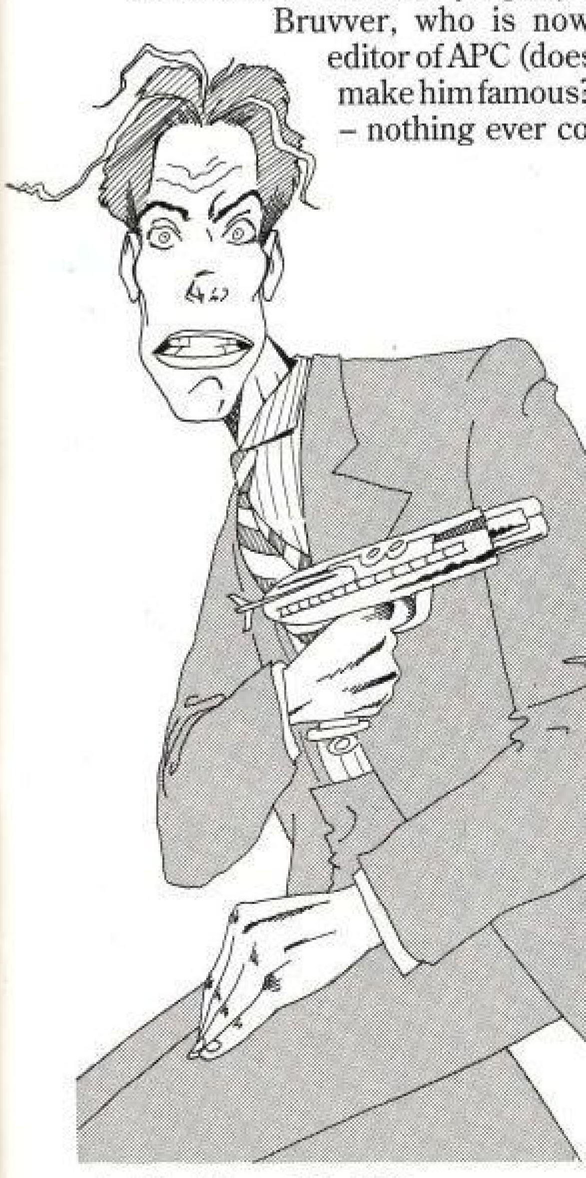
PC manufacturer Mitac were flogging the Andest units I mentioned last month (you've got to remember that this lot gets penned about three years before you see it, you know) in competition with their own built-in jobs. I heard one salesman on the stand telling a punter from ICI or BR or some such that their own unit wasn't BABT approved, but the Andest box was. And then he added that he thought the Andest modem was the better of the two! There's loyalty for you. Jog my memory as we get to the end, and I'll let you into a secret about the REN on BABT approved kit, as well, will you? Good!

Steve White of Hi-Tec fame was, as usual, there at the Which? end as well – this time on the Manor Court Supplies stand. It's not a computer show if Steve isn't there shifting a few mo-

dems. Apart from his own range, he also had some incredibly priced Miracom HST type modems for sale. I don't know how he does it, quite honestly.

There were Racal Milgo Maxam V plusses to be seen here and there as well. I've been using one for a while now, and they're a decidedly hoopy piece of kit. V32 and V42bis, they are, which makes them, as I said last month, a wee bit fast. Too fast, in fact, for the CPC – I can't drive it at the 38,400 bits per second it works best at from my Arnold, even after I've thumped my old Amstrad RS232C, which seems to be working a little better these days. Anyway, if you fancy one of these Maxam beasties, you wouldn't go far wrong. I know this column isn't noted for its hyper-serious style, but believe me, I know my onions when it comes to reliable kit, and Racal may have problems getting me to part with the Maxam V Plus I've got here. I might even end up paying for it (excuse me while I take an aspirin!) it's that good.

I bumped into Mandie Kelly from Tricom, the UK front for Microcom, the people who invented MNP. She's the nice lady who sent me a pair of Tricom Tornado 42 modems to play with a while back. These babies have MNP up to level 10! Don't ask, it's all too complicated, and even I don't understand it. What's more, my rapidly aging Bruvver, who is now the editor of APC (does that make him famous? Nah – nothing ever could!) doesn't understand it either, and he's a pretty clever bloke (except he isn't very pretty. As our Dad said of him, he isn't pretty, he isn't ugly, he's just pretty ugly!)



Anyway, Mandie told me that the 42 is as far as they're going for a while, mainly because the rest of the market hasn't caught up yet. Seems fair enough to me. I mean, it's no good having MNP to 10 without a few more modems to talk to. I know, Miracom managed it with the HST, but that was different.

That's about that from the show(s) really. There were other modems, like the Dataflex unit that said firm has just launched, but that's a card modem for a PC. If I've missed anything out, I'll let you know about it another time.

Those RENs.

Ah, yes, those BABT RENs. REN stands for Ringer Equivalence Number, in case you didn't know, and it's marked on all BABT approved telephonic kit – check the back of your jellybone out. Anyway, you aren't allowed to have a total REN on your line above four, otherwise, according to BT (the firm that's just changed its logo to look like a sweet packet) the phones won't ring.

That means that if all your bits of kit have individual RENs of one, you can have four phones (or modems, answering machines, or a mixture thereof) attached to one phone line and all will be well. BUT there's a fair few modems out there with a marked REN of 3. I got intrigued, so I asked why, and the grif goes like this:

When you put a modem in for a BABT sticker, it goes through lots of tests, the factory where it gets made is inspected (even if it's in California. Especially if it's in California!), the manual is inspected, and its specifications are noted. So far so good.

The thing is, if the test unit doesn't conform to its specs, it doesn't get the green sticker, and the whole rigmarole has to be gone through all over again. And it costs more than a few decent holidays, does this process.

Now, one or two modem makers fell foul of the specs being, shall we say, a little optimistic, and instead of their boxes having a REN of one, as the specs said, they measured out at, for argument's sake, 1.2. Hardly a calamity, you'd think, and so would I, but, nope, the BABT gave them the order of the elbow.

So, our friends did the decent thing, and re-wrote the manual. Well, not very much of it, actually, just the bits that mentioned the modem's REN. They chopped out the '1' and pasted in a '2', or to be really safe, they stuck a '3' there instead. It's easier to do that than go back to the drawing board and start again to get the REN down to below 1, you see.

Call me old fashioned, but I'd have thought that the BABT was being a wee bit picky there, wouldn't you? And since we're going to be flooded with 1992 in a short while, I'm not sure it's all that relevant. You see, come the fateful day, if it's legal in one country, it's legal in them all, and vice versa (ish). In other words, if the Germans pass a modem, then it's OK to use in the UK, as I understand it all.

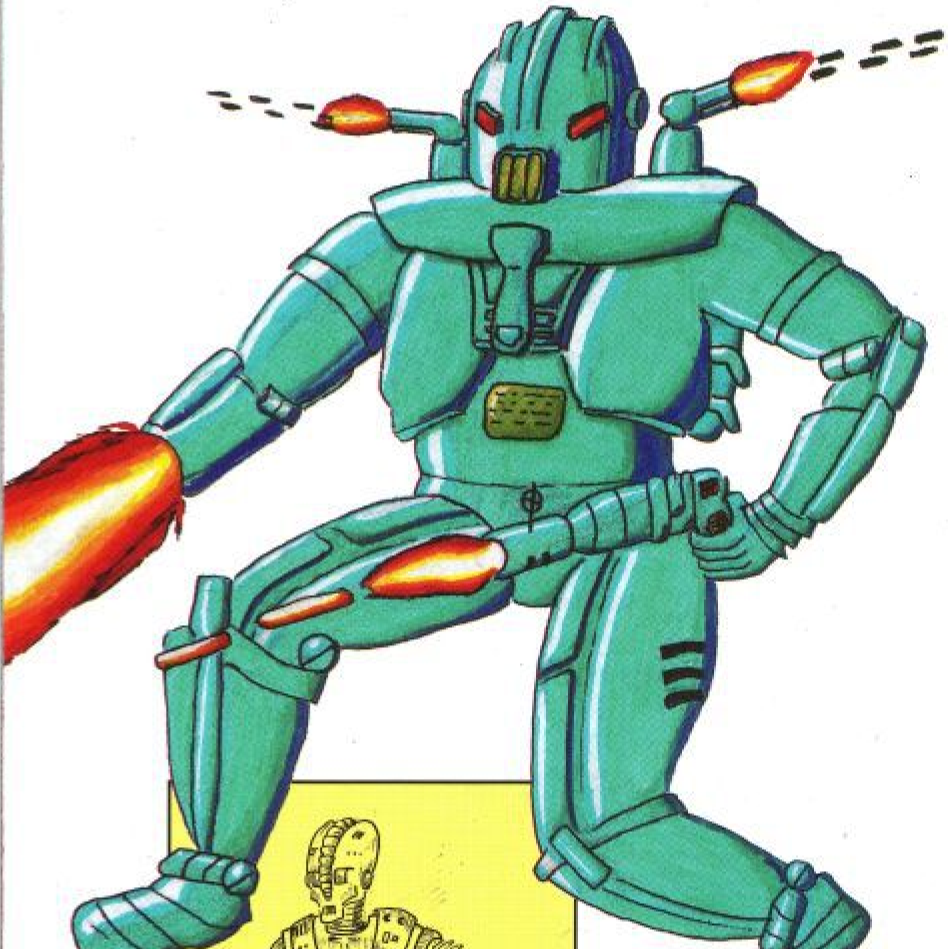
I may have picked up the wrong end of the stick, but I can't find anyone to tell me different as I write this. And since a green sticker on the back of the modem tends to make a price difference of around a hundred beer tokens to the likes of you and me, I daresay that there are lots of people out there hoping I've got it right. Ask me why. OK, I'll tell you!

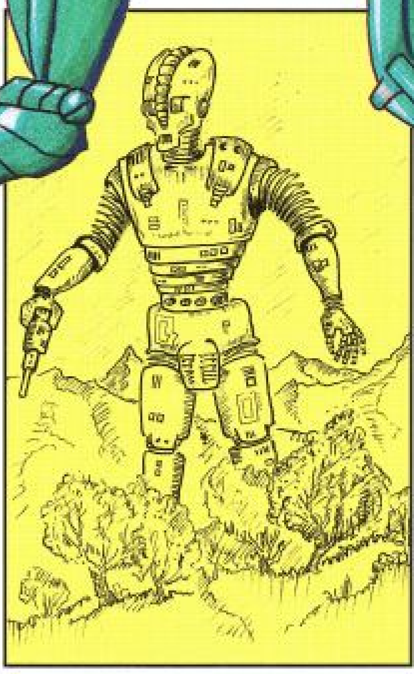
I know of a number of modem makers who have two versions of the same modem. One has a green sticker, and the other has a red sticker. At the moment, the red stickered boxes are 'prohibited from direct or indirect connection to the PSTN' to misquote the gummed slip, but you know what I mean. But, since a lot of them have been passed in that form by French, German, Italian and what have you equivalents of the BABT, if my guess is right they'll be fine to use over here. And if you can get a modem the same as a BABT approved one for a hundred quid less, you aren't going to worry about the sticker, are you?

I've strayed a bit – sorry. The upshot of the REN thing is this. In all probability, the modem you have with a REN of 3 actually has a REN as close to 1 as makes no difference, so you can, in all probability, stick that, the phone, and an answering machine all on one phone line, and nothing will be hurt. Only don't go telling BT I told you that it was OK to do. If you blow the house up, on your own head be it. All I know is that I've had a combined REN of over 7 on one line before now, and everything worked fine. And if I'm asked I'll deny it all!!

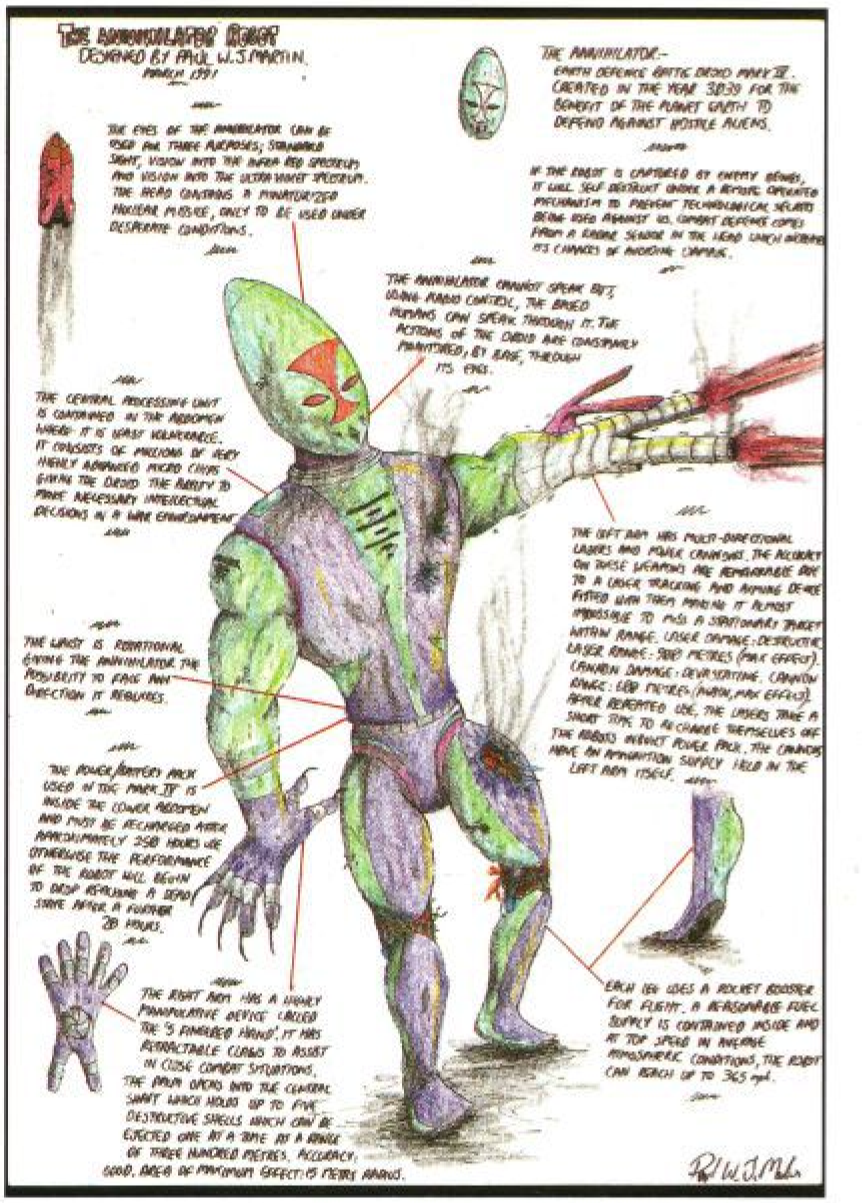
Well, that's about the lot for this month. Why not log onto Maxwell House and visit Bob Adams in his all new CPC and PCW area complete with files areas? I'm sure he'll appreciate it! See you next month. Live long and prosper.

Simon Smith, Aberdeen.





Brian Morris, Ingrave, Essex.



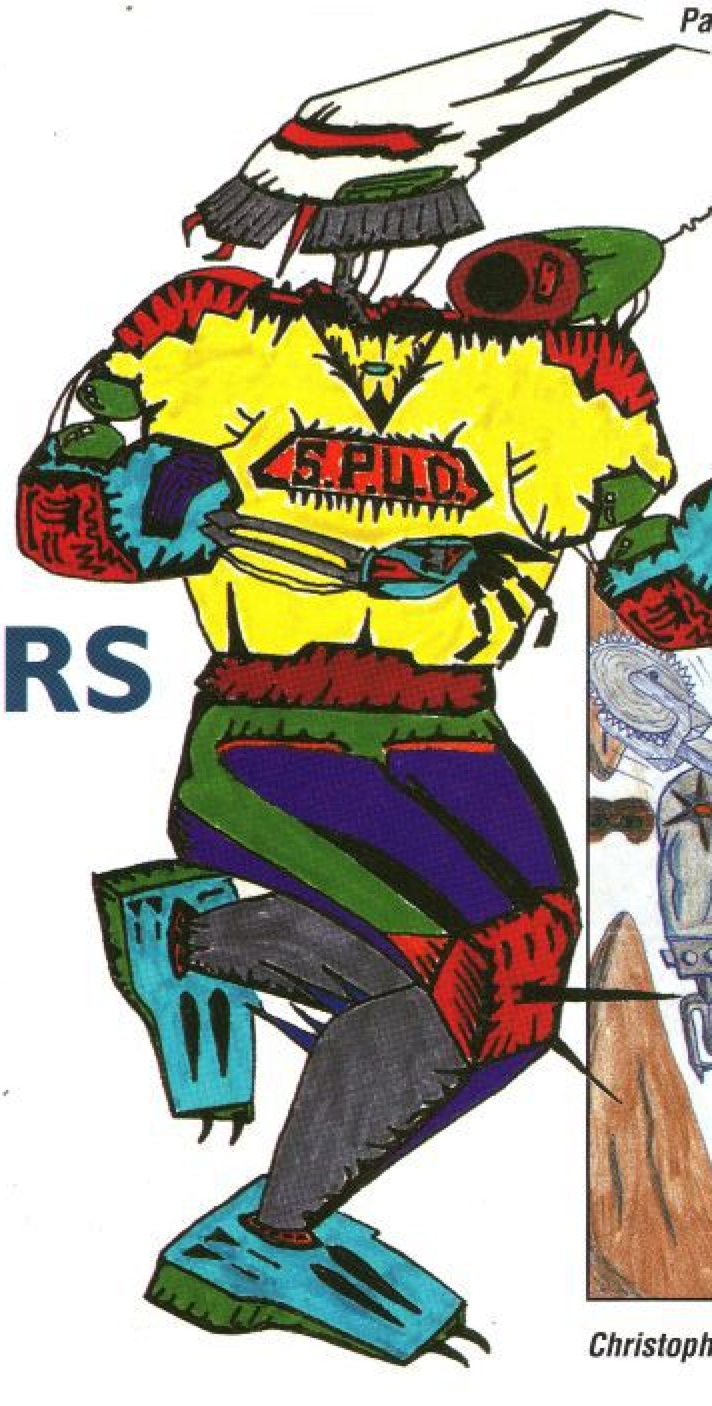
Paul Martin, Warley, West Mids.

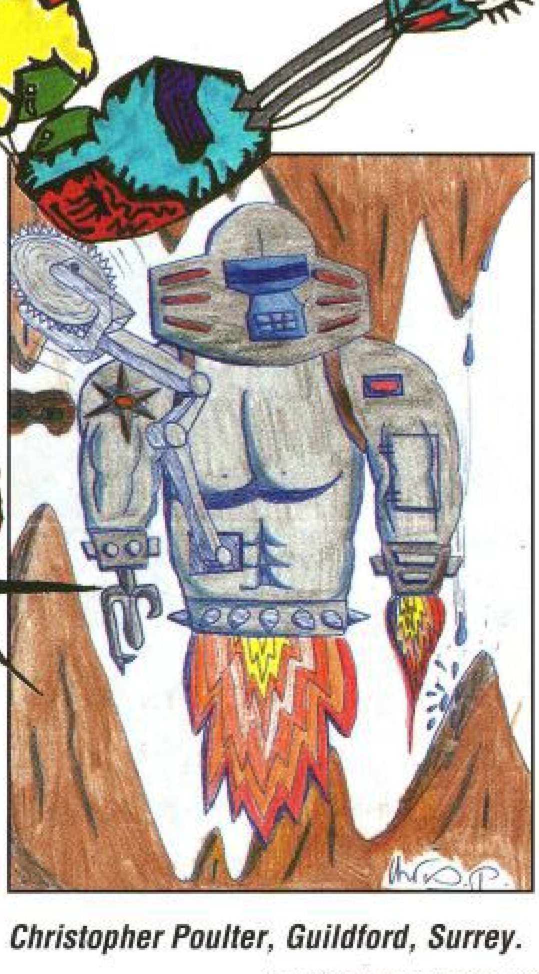
FUTURE WARRIORS

This is it! This is where you find out who's got their hands on that superb Tomy Omni Junior robot and, without any further ado, the extremely lucky winner is, Michael Saunders of Camberley, Surrey, for his expert rendition of S.P.U.D. (See near right).

Unfortunately, we've only got room to show you four of the excellent runner-up drawings, but we sure had some excellent offerings in the mailbag.

Keep up the good work and you could find your own creation on this page very soon. In the meantime, check out this month's fabulous competition for size. You never know, you might just get lucky!





Christopher Poulter, Guildford, Surrey.

LISTING

MELLOW PAGES



BY PAUL FAIRMAN

Let your fingers do the walking, as they say, with this nifty telephone directory program. The type-in allows you to change data at will. Very handy indeed.

```
10 MODE 1:BORDER 0:INK 0,0:INK 1,25:INK 2,23:INK 1,21:INK 4,17:INK 5,6
:INK 6,2:INK 7,26:CLS:DIM name$(500):BORDER 0:DIM tel$(500):PAPER 0:PE
N 1:                    '     *****       version 5.2     *****   '
20 GOSUB 920
30 MODE 1:LOCATE 6,4:PRINT "TELDIR - Created by Paul Fairman":WINDOW 7
,34,8,17:PAPER 2:PEN 0:CLS
40 PRINT"1.  List datafiles"
50 PRINT"2.  Search datafiles"
60 PRINT"3.  Input datafiles"
70 PRINT"4.  Load datafiles"
80 PRINT"5.  Save datafiles"
90 PRINT "6.  Directory disc"
100 PRINT "7.  Edit datafiles"
110 PRINT "8.  Save directory program."
120 PRINT "9.  Print datafiles"
130 PRINT "ESC. EXIT"
140 WINDOW 1,40,1,25:PAPER 0:PEN 1:CLEAR INPUT:KEY DEF 66,0,13:LOCATE
12,25
150 INPUT"Enter option  ",z
160 CLS
170 IF z=0 THEN KEY DEF 66,0,252:END
180 ON z GOSUB 330,980,210,920,890,520,1210,670,1410
190 PEN 1:LOCATE 9,25:dump=0
200 SOUND 1,100,100:GOTO 30
210 PRINT "[ESC][ESC] TO EXIT":WINDOW 1,40,3,25:PRINT:FOR x=1 TO 500
220 IF LEN(name$(x))>0 THEN 290
230 KEY DEF 66,0,13:PEN 1:PRINT x:INPUT;"Name ";name$(x)
240 IF name$(1)=""THEN PRINT:PRINT:PRINT "Input complete.":PRINT:PRINT
 "Press SPACE BAR":CLEAR INPUT:CALL &BB18:RETURN
250 name$(x)=UPPER$(name$(x))
260 IF name$(x)=""THEN 300
270 PRINT:INPUT "Phone ";tel$(x)
280 PRINT:PRINT
290 NEXT
300 PRINT "End of input."
310 GOSUB 890
320 RETURN
330 PRINT "[ESC][ESC] TO EXIT.  [ENTER] - MORE.":WINDOW 1,40,3,25:LOCA
TE 1,25:KEY DEF 66,0,123:FOR x=1 TO 500
340 IF name$(x)=""THEN 380
350 PEN 1:PRINT x;" ";:PEN 3:PRINT name$(x);" ";:PEN 2:PRINT tel$(x)
360 loa$=INKEY$:IF loa$="{"THEN RETURN
370 IF loa$=""THEN 360
380 NEXT
390 PRINT "List complete."
400 PRINT:PRINT:PRINT "Press SPACE BAR":CLEAR INPUT:CALL &BB18
410 RETURN
420 MODE 1:CLS:PRINT "[ESC][ESC] TO EXIT.":WINDOW 1,40,3,25
430 PRINT:PRINT:PEN 3:PRINT "Enter name ":PEN 1:INPUT s$
440 IF s$=""THEN RETURN
450 s$=UPPER$(s$)
460 FOR x=1 TO 500
470 IF INSTR(name$(x),s$)=0 THEN 500
480 IF s$=""THEN RETURN
490 PEN 1:PRINT #dump,x;:PEN 3:PRINT #dump,name$(x);" ";:PEN 2:PRINT #
dump,tel$(x)
500 NEXT
510 GOTO 430
520 ' directory disc
530 CAT
540 ON ERROR GOTO 560
```

```
550 PRINT:PRINT "Press SPACE BAR":CALL &BB18:RETURN
560 PRINT:PRINT:PRINT "Disc error":GOTO 550
570 '  Edit specific datafile"
580 MODE 1:CLS:INPUT "Please enter datafile ",aa
590 IF aa=0 THEN 890
600 PRINT:PRINT "Edit datafile ";:PEN 2:PRINT aa
610 PEN 2:PRINT "Present name ";:PEN 3:PRINT name$(aa)
620 PEN 1:INPUT "New name ",name$(aa)
630 name$(aa)=UPPER$(name$(aa))
640 PEN 2:PRINT "Present phone ";:PEN 3:PRINT tel$(aa)
650 PEN 1:INPUT "New phone ",tel$(aa)
660 GOTO 580
670 ON ERROR GOTO 970:' back up
680 PEN 1:LOCATE 12,12:PRINT "Saving Directory":¦ERA,"dir.BAS":SAVE"di
r":RETURN
690 LOCATE 1,2:PRINT SPACE$(30):CLEAR INPUT:CALL &BB18
700 RETURN
710 MODE 1:KEY DEF 66,0,123
720 PRINT "[ESC] - EXIT  [SPACE] - EDIT.":WINDOW 1,40,3,25:PRINT:LOCAT
E 1,25:FOR x=1 TO 500
730 IF name$(1)=""THEN PRINT:PRINT:PRINT "NO DATAFILES TO EDIT.":PEN 2
:PRINT:PRINT "Press SPACE BAR":CALL &BB18:RETURN
740 PEN 1:PRINT x;:PEN 3:PRINT name$(x);" ";:PEN 2:PRINT tel$(x)
750 e$=INKEY$
760 IF e$=""THEN 750
770 IF e$=" "THEN 810
780 IF e$="{"THEN 880
790 NEXT
800 GOTO 880
810 ON ERROR GOTO 950:PRINT:PRINT:PEN 1:PRINT "Edit datafile ";x
820 PEN 1:PRINT "Present name ";name$(x)
830 PEN 1:INPUT "New name ";name$(x)
840 name$(x)=UPPER$(name$(x))
850 PEN 3:PRINT "Present phone ";tel$(x)
860 PEN 1:INPUT "New phone ";tel$(x)
870 GOTO 790
880 '          SAVING DATAFILES
890 MODE 1:PEN 1:ON ERROR GOTO 960:FOR o=1 TO 12:LOCATE o,12:PRINT "Sa
ving Datafiles":LOCATE o,12:PRINT " ":NEXT:LOCATE 12,12:PRINT "S":OPEN
OUT"data":FOR x=1 TO 500:WRITE #9,name$(x),tel$(x):NEXT
900 CLOSEOUT:PRINT "Data saved."
910 RETURN
920 PEN 1:MODE 1:PEN 1:ON ERROR GOTO 950:FOR o=1 TO 12:LOCATE o,12:PRI
NT "Loading Datafiles":LOCATE o,12:PRINT " ":NEXT:LOCATE 12,12:PRINT "
L":OPENIN"!data":FOR x=1 TO 500:INPUT #9,name$(x),tel$(x)
930 NEXT:CLOSEIN
940 RETURN
950 CLOSEIN:IF DERR=146 THEN PRINT "No datafiles in memory.":PEN 3:PRI
NT:PRINT "Please press SPACE BAR":CALL &BB18:name$(1)="":GOTO 30 ELSE
PEN 3:PRINT:PRINT "Disc error.  Please correct.":PEN 2:PRINT :PRINT "P
ress SPACE BAR.":CALL &BB18:GOTO 920
960 PEN 3:PRINT:PRINT "Disc error.  Please correct.":PEN 2:PRINT:PRINT
 "Press SPACE BAR.":CALL &BB18:GOTO 890
970 PRINT:PRINT "DISC ERROR.  PLEASE CORRECT.":PRINT:PRINT "PRESS SPAC
E BAR":CALL &BB18:GOTO 670
980 ' Searcher
990 IF dump=1 THEN PRINT "PRINTER"ELSE PRINT "SEARCHER"
1000 PRINT "1.  Name ";:IF dump=1 THEN PRINT "Print"ELSE PRINT "Search
"
1010 PRINT "2.  Phone ";:IF dump=1 THEN PRINT "Print"ELSE PRINT "Searc
h"
1020 PRINT "3.  Datafile ";:IF dump=1 THEN PRINT "Print"ELSE PRINT "Se
arch"
1030 PRINT "ESC Exit"
1040 KEY DEF 66,0,123
1050 qw$=INKEY$
1060 IF qw$="1"THEN KEY DEF 66,0,13:GOTO 420
1070 IF qw$="2"THEN KEY DEF 66,0,13:GOTO 1110
1080 IF qw$="3"THEN KEY DEF 66,0,13:GOTO 1350
```

continued on page 66

BITS 'N' PIECES

For Sale

FIRMWARE GUIDE for sale! Highest offer gets it. Also, ACUs Jan '88 onwards and more CPC stuff. SAE for list. R.Whitwell, 2 Chase Mews, Chase Road, Ross, HFDS. HR9 5JQ. Hurry!

GAMES FOR SALE great offers such as X-Out at £2.50 and Back to the Future at £3.00 and some on disc. Call Barrie on 0635 60383 after 4pm.

AMSTRAD CPC464, keyboard, monitor, superboard joystick, magazines, pokes, hints, tips and cheats. 160 games including Matchday II, Myth, Football Manager and Outrun. Immaculate condition. £2.50 ono. (Colour monitor). Telephone Thurnby 416165 anytime.

SENSATIONAL SOUND SAMPLER analyser, editor for CPC6128, 464, 664. On disc for £10 or cassette for £5. Send cheque/PO and SSAE to Peter Wilkins, Pen-Y-Bryn, Engedi, Bryngwran, Anglesey. LL65 4SW. State disc/tape. Telephone 0407 720606 for details.

AMSTRAD FD1 DRIVE, cable and interface and second 3" drive. £90. DKTronix 256K memory plus 6128 rom in switched rombox, fits expansion port £25. Maplin expansion box and cable fitted Protext, Prospell, Utopia, 64K silicon disk £45. Or £145 the lot. Call H.Barker on 0772 423496 for details.

FOR SALE Amstrad CPC464, good condition, plus disc drive, colour monitor, Amstrad joystick, over 200 games including Mini Office II etc., light pen. £180 ono. Contact Andrew on 0889 502481 after 5pm.

AMSTRAD CPC6128, colour monitor, joystick and various discs including Tasword, Leaderboard Golf game, Pacland, Daley Thompson Challenge and lots more. £320. Also, DMP 3160 printer £150. Telephone 0892 543350 evenings.

CPC464, green monitor, over 80 games, TV modulator, magazines, sell for £170 ono. Phone 061 428 3278.

DART SCANNER features flip screen etc., compatible with light pen, mouse. For use with all DMP printers. Produces games screens, letterheads etc. Disc and cassette software as new. £50. Call H.Drake on 0273 483485 for details.

AMSTRAD CPC464 plus green monitor, MP2 TV converter plus £300 worth of games and magazines. Will sell separately or complete for £200 ono. Ring C.Beard on 0293 786345 after 3.30pm.

FOR SALE cheap Amstrad games on tape or disc, including X-Out, Afterburner, Barbarian and Vendetta. All in original packaging. Phone 0227 721124 after 6pm on weekdays and anytime at weekends and ask for Edward.

FOR SALE TV modulator for the CTM664 colour monitor. Turn your monitor into a full colour TV. £30 ono. Please contact James on 0666 41391.

PACK OF 10 3.5" discs DS/DD and labels. Free P&P. Send cheque for £7 per 10. Any amount. Also, Mini Office II cassette as new £6. Write to R.J. Amison, 56 Drubbery Lane, Bhurton, Stoke-on-Trent. ST3 4BH or ring 0782 318548 for details.

AMSTRAD CPC464 with MP2 TV modulator and green screen monitor and 41 games. Plus, Amstrad business centre and posters and manual. Very good condition. £199 ono. Will deliver. Contact Keith Hallam, 21 Delamere Avenue, Salford for details.

CPC6128 colour and TV receiver. Two year guarantee, DMP 2000, speech, second 3.5 disc drive, Multiface 2+, romboard, recorder, mouse, Amdrum, Loadsa games, mostly disc games. Worth over £2225. Quick sale for £950 ono. Phone after 5pm on 0226 204490 and ask for Lee.

AMSTRAD CPC464, keyboard (escape missing, space bar works but is a bit wonky), colour monitor and over £700 worth of games. All sold separately or together for £490. Ring Doddinghurst 821247 between 4pm and 10pm for details.

FOR SALE TT Racing Simulator, Chimaera, Rod Pike's Horror Compilation, Technician Ted, Pro-Golf, Willow Pattern, Seabase Delta, Flight Simulator, Shanghai Karate, Roadblasters, Joe Blade 2, Magic, Kickstart 2, Alien Syndrome, Dan Dare, Ghostbusters, Super Sports, Dan Dare 2, Aliens. Contact Vincent Chaplin, 34 Woodlands Road, London N9 8RT.

STAR LC10 printer with ribbon and instruction manual. Has not been used at all, with box. Cost £200 but will sell for £155 ono. Phone Khalid on 081 679 1462 after 4pm weekdays.

CPC464 hardware and software for sale. Send SAE to A.Keech, 19 Sharman Walk, Bradwell Village, Milton Keynes MK13 9EE.

CPC464, colour monitor, extra 64K memory, DMP2160 printer, mouse, disc drive, joystick, nearly 100 games and over 30 computer magazines. Only £325 ono. Telephone Mr Robinson on 0473 832085.

AMSTRAD CPC464 and colour monitor with disc drive, AMX art plus mouse, lightpen with art package, speech synthesiser, music machine, word processor, tape/disc copier and over £400 worth of software for just £350. Ring Stuart after 6pm on 0642 562045.

CPC464, green monitor, two joysticks, MP1 modulator, some games plus users manual. Bargain at £130. North Wales area. Telephone 03526 5562.

OVER 136 Amstrad tape games for sale at a bargain price opf £185. That's £1400 worth!! Please phone Oxford 813372 anytime.

CPC6128 colour for sale. Plus Rick Dangerous 2, Castle Master, Brunword, Fiendish Freddy, loadsa tape games and loadsa mags. £270 ono. Offers to Martin Kremenstein, 1 Derwent Drive, Maidenhead, Berks. Telephone 0628 32434.

GAMES FOR SALE, e.g. Time Scanner £2.50. Rainbow Islands 99!! Any four budget games £2.99. Two budgets for £1.99. Cartridge offer- Switchblade only £15.99. Phone 0905 353587 for complete stocklist.

Wants/Swaps

WANTED: instructions for World Class Leaderboard from US Gold. Also disc poke for Spindizzy. Will pay. Write to Naomi, 52 Danecourt Road, Poole, Dorset BH14 0PQ. Or phone me on 0202 744196.

DOES ANYBODY HAVE a broken 6128 they don't want? If so, please contact me at 8 Donegall Avenue, Whitehead, Carrickfergus, N.Ireland. Or phone 09603 73782 and ask for Bruce.

HELP NEEDED for Fantasy World Dizzy. Need position for all 30 coins and how to get them. Phone Jonathan on Chelmsford 259837, or write to 1 Norfolk Drive, Chelmsford Essex. CM1 4AG.

WANTED Turrican, Chase HQ, Soccer Mania, Narc or Pang for any 2 of my cassettes. Swap or sell Double Dragon 1 or 2, Turtles, Kick Off 2, Robocop etc. Telephone Graham on 0285 652503.

PROGRAMMERS WANTED for new PD library. Send information or demo discs to Lee Davis, 13 Cotham Vale, Cotham, Bristol. BS6 6HS. (Good prices paid).

WANTED: Nevada Cobol applications packages book 1. Published by Ellis Computing 1982 to complete my studies. Contact T.Thomas at 81 Maidstone Road, Rainham, Kent ME8 ODR. Telephone Medway 362335.

WANTED: Machine code tutorial books for CPC. Must be in good condition. Write or phone anytime. Andrew Doyle, 129 Cherrymount, Clonmel, County Tipperary, Eire. Telephone 052 22767.

WANTED ACUs from Oct '88 to Jan '89. Also April '89, May '89, Aug '89 and Sept '89. Have swaps from 1985 to 1988 or will buy. Phone 0623 640586 and ask for Kevin.

DESPERATELY NEEDED Amstrad DMP-1 printer and suitable disc drive compatible with an Amstrad CPC464 to help me with studies. Contact Paul Wright, 34 Edison Avenue, Hornchurch, Essex. RM12 4DX.

ADVANCED MUSIC SYSTEM by Rainbird required on disc to help with GCSE music. Please contact Samuel Hopkins, 96 Streathbourne Road, Tooting Bec, London SW17 8QY. Or phone on sundays on 081 672 5140.

SWAP GAMES Adrian Mole, Cluedo, Chiller, Finders-Keepers and P47 for MP1 TV modulator for CPC 464 or utilities, tapes. My games are on tape. Phone 081 533 3793.

WHIZZ PD: Software is needed for new PD library. Games, utilities etc.. all needed. If used, you'll get vouchers and loadsa PD stuff. Write to Whizz PD, 20 Cross Street, Nuneaton, Warks. CV10 8HY.

I HAVE Times of Lore on tape and want it on disc. Has anyone got it and would like to swap it? Phone 0986 872444.

WANTED CP/M system disc, package master or working copies. Colour monitor or swap green monitor for MP2 modulator. Please telephone 081 521 4551 or write to K.Norman, 14 Russell Road, Leyton, London E10.

100s OF POKES and cheats wanted. Karnov cheat mose (tape only) in return for many pokes and cheats. Write what pokes or cheats you want. Write or phone Denis Collins, Main Street, Patrickswell, County Limerick, Ireland. Telephone 061 355142.

WILL SWAP any one of Ghostbusters 2, Robocop, Ninja Sprit, for Helter Skelter, NARC. Will also swap any two of the above for Iron Lord or Viz. Phone Rob on 0245 256516.

WANTED Firmware Manual for 6128. Will give five budget games just for a loan. (worth £15), including Mig 29 and Paperboy. I will pay the postage costs. Contact Matthew Epps, 18 Northbridge Street, Robertsbridge, East Sussex. TN32 5NY.

WILL SWAP OR SELL any of 52 games. For a full list, send a SAE to Matthew Tuck, 15 Ravencar Road, Eckington, Sheffield. S31 9GJ.

EXCHANGE: Chase HQ, Continental Circus, World Class Leaderboard, all discs. WANTED: Dr Graph or Microspread/Micrograph. P.White, 5 Triandra Way, Hayes, Middx. UB4 9PB.

WANTED: RS232 interface for CPC6128. (MK2 Amstrad/Pace) if possible, or similar. Telephone 0294 79229.

WANTED: copy of Bored of the Ring. Also, any help with Stifflip and Co. Contact Eric Stevens, 113 Bathurst Terrace, Langwith, Mansfield, Notts. NG20 9BL. Telephone 0623 747285.

I HAVE an Amstrad clock/radio to swap for anything. Contact Robert on Homethorpe 851078.

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continued from page 63

```
1090 IF qw$="{"THEN RETURN
1100 GOTO 1050
1110 MODE 1:CLS:PRINT "[ESC][ESC] TO EXIT.":WINDOW 1,40,3,35
1120 PRINT:PRINT:PEN 3:PRINT "Enter phone ":PEN 1:INPUT s$
1130 IF s$=""THEN RETURN
1140 s$=UPPER$(s$)
1150 FOR x=1 TO 500
1160 IF INSTR(tel$(x),s$)=0 THEN 1190
1170 IF s$=""THEN RETURN
1180 PEN 1:PRINT #dump,x;:PEN 3:PRINT #dump,name$(x);" ";:PEN 2:PRINT
#dump,tel$(x)
1190 NEXT
1200 GOTO 1120
1210 KEY DEF 66,0,123: 'Editer
1220 MODE 1:CLS:PRINT "[ESC][ESC] TO EXIT.":WINDOW 1,40,3,35
1230 PRINT "1.  Name editor"
1240 PRINT "2.  Phone editor"
1250 PRINT "3.  List editor"
1260 PRINT "4.  Datafile editor"
1270 PRINT "ESC Exit"
1280 w$=INKEY$
1290 IF w$="1"THEN KEY DEF 66,0,13:GOTO 1420
1300 IF w$="2"THEN KEY DEF 66,0,13:GOTO 1580
1310 IF w$="3"THEN 710
1320 IF w$="4"THEN KEY DEF 66,0,13:GOTO 570
1330 IF w$="{"THEN RETURN
1340 GOTO 1280
1350 MODE 1:CLS:PRINT "[ESC][ESC] TO EXIT.":WINDOW 1,40,3,35
1360 PRINT:PRINT:PEN 3:PRINT "Enter datafile ":PEN 1:INPUT s
1370 IF s>500 THEN PRINT:PRINT "No such datafile.":GOTO 1350
1380 IF s=0 THEN RETURN
1390 PEN 1:PRINT #dump,s;:PEN 3:PRINT:PRINT #dump,name$(s);"  ";:PEN 2
:PRINT #dump,tel$(s)
1400 GOTO 1360
1410 dump=8:GOTO 980:' printer
1420 ' Name editor
1430 MODE 1:CLS:PRINT "[ESC][ESC] TO EXIT.":WINDOW 1,40,3,35
1440 PRINT:PRINT:PEN 3:PRINT "Enter name ":PEN 1:INPUT h$
1450 h$=UPPER$(h$)
1460 IF h$=""THEN 880
1470 FOR x=1 TO 500
1480 IF INSTR(name$(x),h$)=0 THEN 1500
1490 PEN 1:PRINT x;:PEN 3:PRINT name$(x);" ";:PEN 2:PRINT tel$(x)
1500 NEXT
1510 PEN 1:PRINT:INPUT "Please enter datafile ",aa
1520 IF aa=0 THEN 890
1530 PRINT:PRINT "Edit datafile ";:PEN 2:PRINT aa
1540 PEN 2:PRINT "Present name ";:PEN 3:PRINT name$(aa)
1550 PEN 1:INPUT "New name ",name$(aa)
1560 name$(aa)=UPPER$(name$(aa)):PEN 2:PRINT "Present phone ";:PEN 3:P
RINT tel$(aa):PEN 1:INPUT "New phone ",tel$(aa)
1570 GOTO 1510
1580 ' Phone editor
1590 CLS
1600 PRINT:PRINT:INPUT "Enter phone number ",po$
1610 IF po$="" THEN 880
1620 FOR x=1 TO 500
1630 IF INSTR(tel$(x),po$)=0 THEN 1650
1640 PEN 1:PRINT x;:PEN 3:PRINT name$(x);" ";:PEN 2:PRINT tel$(x)
1650 NEXT
1660 PRINT:PRINT:INPUT "Enter datafile to edit ",df
1670 IF df=0 THEN 890
1680 IF df>500 THEN PRINT "No such datafile.":GOTO 1660
1690 PRINT:PEN 1:PRINT df;:PEN 2:PRINT "Present name ";name$(df)
1700 PEN 3:INPUT "New name ",name$(df)
1710 IF name$(df)=""THEN 880
1720 PEN 1:PRINT df;:PEN 2:PRINT "Present phone ";tel$(df)
1730 PEN 3:INPUT"New phone ",tel$(df)
1740 GOTO 1580
```

PRINTER COMMANDS – THE EASY WAY

BY RICHARD WILLIAMS

How often have you written a programme for your printer to display data, for say a spreadsheet, and wished there was some easier method of telling the printer what to do, without all those messy CHR$(27); etc, commands having to be laboriously typed in?

Do you know how to make your printer print a continuous unbroken line?

The small listing below shows how to do all this, it is however written for EPSON compatible printers, but for other printers your hand-book should show what will need to be amended.

Line 10 – Defines string variables to get rid of as many $ signs as possible. The letter "O" is reserved exclusively for printer command variables.

Line 30 – Variable: O becomes a Printer TAB symbol. OA and OB are symbols for Printer templates.

Line 40 – Variable OX and OY are Printer symbols for: Underline ON and Underline OFF.

Line 110 – Sets Printer to Condensed print. This enables me to use 127 columns on normal 80 column paper.

Line 120 – Sets up Printer TABS

Line 600 – Is a small sub-routine to print lines. It does this by printing 127 underlined spaces. The value of E was made 127 in line 140.

Line 210 – Prints a double ruled line.

```
10  DEFSTR O,M:DEFINT A,C,L,K
20  DIM A(13,5),B(13,5),MONTH(13)
30  O=CHR$(9):OA="#####,.":OB="#####,.##"
40  OX=CHR$(27)+"-"+CHR$(1):OY=CHR$(27)+"-"+CHR$(0)
50  FOR L=1 TO 13:READ MONTH(L):NEXT L
60  GOSUB 400:GOSUB 500

100 'PRINT SPREADSHEET

110 PRINT #8,CHR$(27);CHR$(15);:      '(CONDENSED PRINT)
120 PRINT #8,CHR$(27);"D";CHR$(15);CHR$(25);CHR$(38);CHR$(48);
    CHR$(61);CHR$(71);CHR$(84);CHR$(94);CHR$(107);CHR$(117);CHR$(0)
130 PRINT #8,O;O;O;O;OX;"SCHEDULE OF SALES FOR ONE YEAR";OY
140 E=127:GOSUB 600
150 PRINT #8:PRINT #8,"MONTH";O;"     COMMODITY 'A'";O;
    "     COMMODITY 'B'";O;"     COMMODITY 'C'";O;
    "     COMMODITY 'D'";O;"       TOTAL"
160 FOR K=1 TO 5:PRINT #8,O;"   GOODS      VALUE";:NEXT K
170 GOSUB 600
180 PRINT #8:FOR L=1 TO 12:PRINT #8,MONTH(L);:FOR K=1 TO 5:
    PRINT #8,O;USING OA;A(L,K);:PRINT #8,O;USING OB;B(L,K);
    :NEXT K:PRINT #8:NEXT L
190 GOSUB 600
200 PRINT #8:PRINT #8,MONTH(13);:FOR K=1 TO 5:PRINT #8,O;USING OA;
    A(13,K);:PRINT #8,O;USING OB;B(13,K);:NEXT K:PRINT #8
210 PRINT #8,OX;SPACE$(E);OY;:PRINT #8,CHR$(27);CHR$(65);CHR$(2);
    :GOSUB 600:PRINT #8,CHR$(27);CHR$(50);:PRINT #8

300 END

400 'SET UP SOME DATA FOR PRINTOUT

410 C=0:D=0:FOR L=1 TO 12:C=C+50:D=D+100.25
420 FOR K=1 TO 4:A(L,K)=C+(5*K):B(L,K)=D+(9.11*K)
430 NEXT K:NEXT L:RETURN

500 'CALCULATE TOTALS

510 FOR L=1 TO 12:FOR K=1 TO 4:A(L,5)=A(L,5)+A(L,K)
    :B(L,5)=B(L,5)+B(L,K):NEXT K:NEXT L
520 FOR K=1 TO 5:FOR L=1 TO 12:A(13,K)=A(13,K)+A(L,K)
    :B(13,K)=B(13,K)+B(L,K):NEXT L:NEXT K:RETURN

600 'PRINT LINES

610 PRINT #8,OX;SPACE$(E);OY:RETURN

700 DATA JANUARY,FEBRUARY,MARCH,APRIL,MAY,JUNE,JULY,AUGUST,
    SEPTEMBER,OCTOBER,NOVEMBER,DECEMBER,TOTALS
```




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Time to die, Stranger!
...the Vikings attack!
The book of Spells...
Ye gods above! I must escape this ghoulish torment!
...a valuable asset.
Out of the frying pan...
Nnnngh! I hate trolls!
...into the fire
A swift victory.
May I borrow your dagger, ugly?
The guardian of the key.
Hmm. Rain must come under R somewhere.
Colin Jones '91



The spell begins to work.
Beware the Giant Worm!
Keep your distance, Behemoth!
The castle of Doom.
How dare you intrude, human!
Aargh!
The gods are angry!
Have a taste of your own medicine, Buster!
The lightning bolts...
I cannot die! I am immortal!
...find the mark.
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Immortal, huh? Then stop me if you can.
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THERE WILL BE MOMENTS WHEN YOU'LL WISH YOU HADN'T TAKEN OFF!

'F-16 Combat Pilot pulls out all the stops'
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I'm primed for action as my F-16 leaves the runway. This time my mission is to destroy a battalion of tanks. Suddenly, threat warning – interceptors closing fast! I quickly select dogfight mode and arm a Sidewinder. We both fire at the same time – chaff and a high-g turn out manoeuvres his missile. A loud explosion tells me he's not so lucky.

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